Cold Warrior REUNION

THE END OF THE WORLD
IS BROUGHT TO YOU BY
the
STRATEGIC AIR COMMAND
SOVIET NUCLEAR DEFENSE FORCES

Thanks for Coming!

52nd Annual- Department of Energy

Cook-Out

and

ATOMIC TEST

Bring Food and Drink !

JIM VAUGHAN's 41 N. WILLOW 678- SAT. AUGUST 2nd 6-10PM

actual photo taken at beautiful Yucca Flats Proving Grounds: Upshot Knothole- 41 kiloton

ILLUSTRATED BY ROBERT MCCALL

Just 12 minutes after he was hit, Capt. Durkee skidded his damaged Thunderjet along the runway, while Air Force fire fighters and medical personnel rushed to help him

The student pilot's bullets missed the target, and instead plowed into Captain Richard Durkee's plane—and into Durkee. Now, blinded and bleeding to death, Durkee groped toward Luke AFB, and a man he'd never met flew at his wing, desperately coaching him in. "How about my landing gear?" asked Durkee. His wingman radioed . . .

"Belly it in!"

By JOSEPH STOCKER

AT APPROXIMATELY eight o'clock on the morning of May 31, 1955, a student pilot from Luke Air Force Base, Arizona, pressed the gun button on his control stick. From the stubby nose of his F-84 Thunderjet fighter-bomber poured a deadly cascade of .50-caliber machine-gun fire.

He was aiming at a tow target 12,000 feet above the empty desert waste of southwestern Arizona. But he missed the target. His bullets, instead, smashed squarely into another jet plane which, just at that instant, had whirled into his line of fire from his blind spot below and ahead of him.

It was, as an investigation subsequently established beyond the slightest question, an accident, and a very unusual type of accident at that. Jet pilots ordinarily shoot other jet pilots only when there is a war on.

Still, accidents happen. Jet combat, after all, is as hazardous a trade as scientific man has devised. And, in preparing himself for his trade, the jet pilot must incur an irreducible minimum of hazard, else his training is worthless.

Accordingly, this particular accident might have been filed and forgotten—except for what occurred in the 12 tense and terrible minutes immediately following. During those minutes, monumental courage was demonstrated by one man and monumental presence of mind by (*Continued on page 68*)

Months later, injured pilot (l.) met Lt. H. J. Browning, who'd saved him

S-17
S-17
S-17

SINCE THE OUTBREAK of war in Korea, America has been working against time to build up its Air Power. Only our military leaders and Congress can decide how much Air Power we should have at any given time. Yet, as a leading manufacturer, we feel a responsibility to help you understand the vast complexity of modern aircraft . . . and why a "happy medium" level of production must be maintained in peace so that we can expand quickly to meet emergencies. Second-best Air Power is not enough in war. America's future security demands a long-range Air Power program in peace as well as in emergencies.
8
McCall

POTENT NORTH AMERICAN AJ "SAVAGE," POWERED BY TWO PRATT & WHITNEY PISTON ENGINES AND ONE JET, HAS MORE REACH THAN ANY OTHER CARRIER-BASED PLANE.

USAF
ATLAS

СОВЕТЫ и ЭЛЕКТРОФИКАЦИЯ ЕСТЬ ОСНОВА
НОВОГО МИРА

ДА ЗДРАВСТВУЕТ РАБОЧЕ-КРЕСТЬЯНСКАЯ КРАСНАЯ АРМИЯ—
ВЕРНЫЙ СТРАЖ СОВЕТСКИХ ГРАНИЦ!

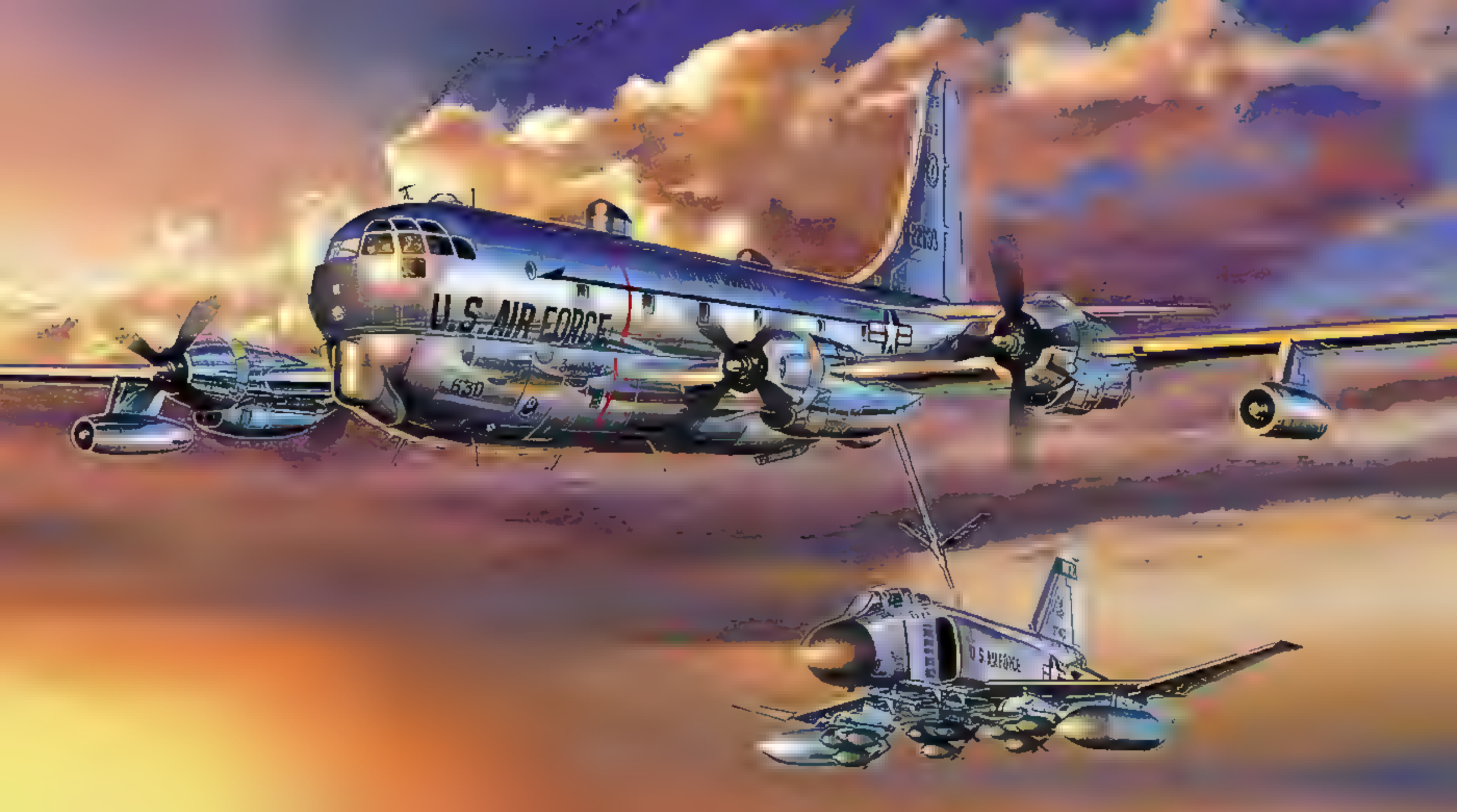
ЛЕНИН –
ЖИВ,
ЛЕНИН –
БУДЕТ ЖИТЬ!
ВЛ. МАЯКОВСКИЙ.

ATOMIC ANNHILATION

3-31-8

U.S. AIR FORCE
2320

U.S. AIR FORCE
U S AIR FORCE


U.S. AIR FORCE
630

Complete Collection United States Missiles

UNITED STATES

MISSILE Arsenal

Foreword by
Willy Ley

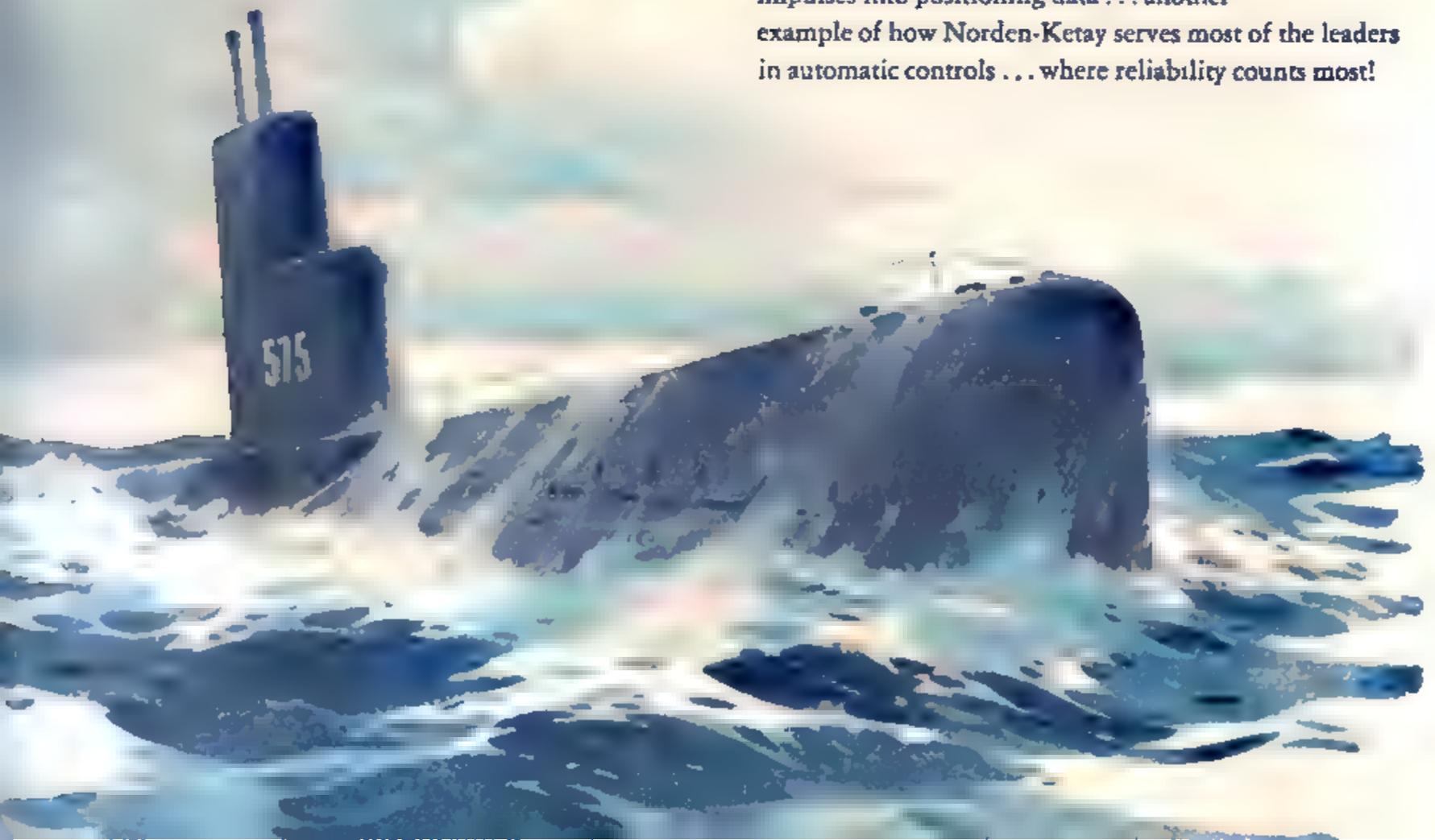
32 Page
Missile
Book

"TO PEACE

because the awful alternative is the end of all life"

These are the last twelve words of the invocation given at the launching of "Seawolf."
As the *second* nuclear-powered submarine to be completed within the past 20 months . . . it dramatically re-affirms our entrance into a brand new era!

In a smaller way . . . yet significantly . . . it also re-affirms Norden-Ketay's leadership in the field of electronics and instrumentation. For based upon their experience, research facilities, and performance in volume production . . . The Precision Components Division of Norden-Ketay was chosen by General Dynamics Corporation, builder of "Seawolf," to supply the *SYNCHROS* which translate electrical impulses into positioning data . . . another example of how Norden-Ketay serves most of the leaders in automatic controls . . . where reliability counts most!



demonstration of how fast the new supersonic interceptors can fly. Warden had taken off from Palmdale and reached San Diego in the same time Myrann needed for a cockpit check and a normal take-off.

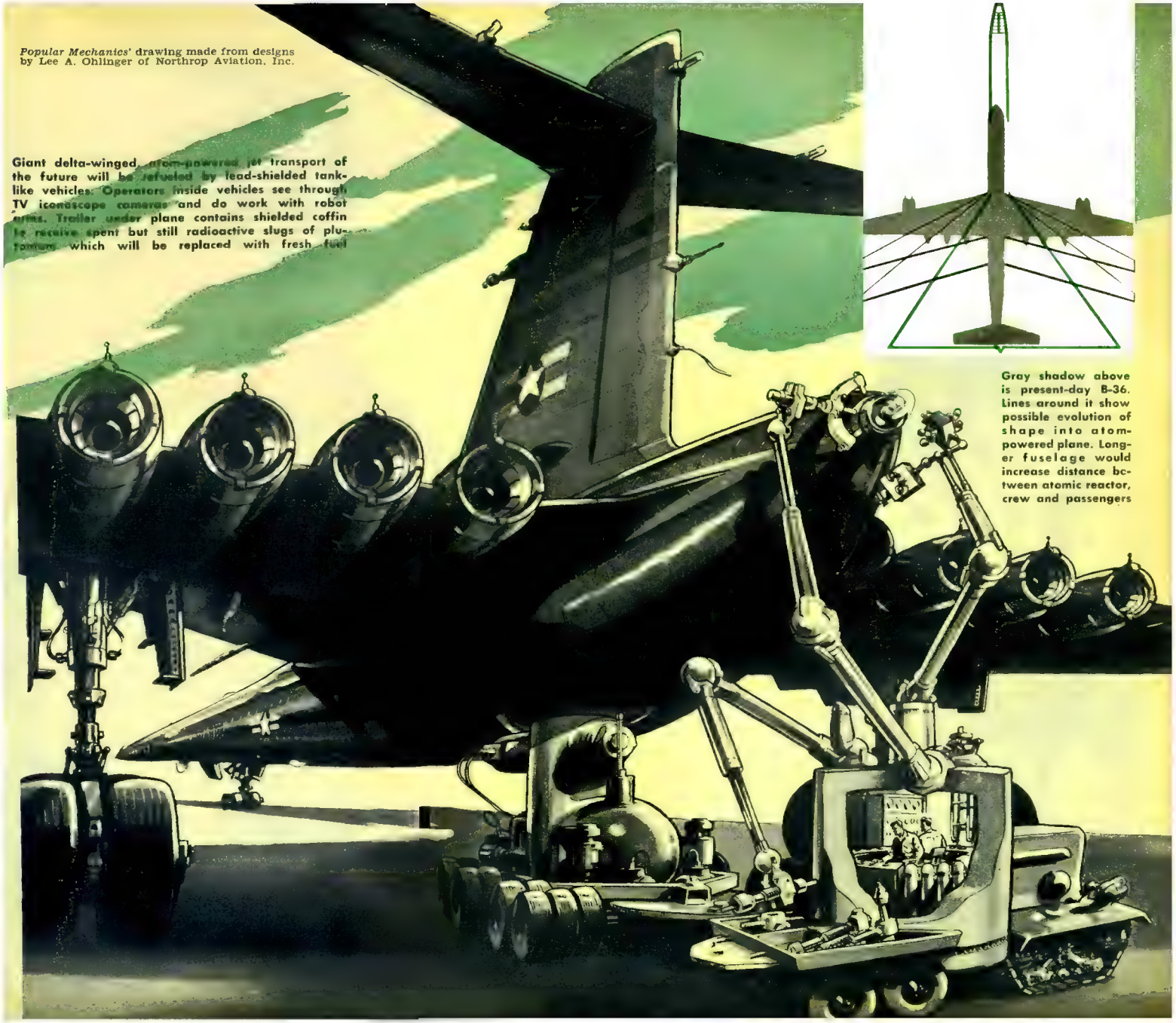
The deltas are a new family of aircraft. They get their name from the fourth letter of the Greek alphabet, an equilateral triangle, that the new shape somewhat resembles. The delta has been called the wing of the future for aircraft that fly faster than sound. It isn't very efficient at slow speeds, but it goes through Mach 1 with hardly a tremor—then it's hard to catch. Many designers believe that its margin of superiority widens rapidly as the speed goes up. It is said to be more stable and maneuverable than other designs at high altitudes.

"The delta wing gives an interceptor pilot a tremendous advantage at altitudes of around 50,000 feet," says Warden, chief test pilot at Convair's Palmdale, Calif., facility. "A delta can overtake any bomber that has been built so far. If the bomber pilot tries a tight turn in the thin air he loses speed and goes into a stall. He needs maybe 25 miles of space to turn around. The delta can turn much more sharply. If the bomber pilot tries to dive away, his speed goes up and he gets into compressibility. He loses control. Escape is almost impossible."

These days the F-102A doesn't even need to get close to its target to make a kill. The big six-foot Falcon homing missiles that it carries can be fired from miles away. Interception is automatic and is performed by the new Hughes "seek-find-kill" electronic system that guides the interceptor to the target. If air-to-air aimed rockets are to be fired instead of the guided missiles, the electrical brain "locks on" the target and gives steering directions to the pilot so that he flies a lead collision course. Then the system opens the missile doors under the fuselage and launches the armament at the exact instant when a kill is assured.

The delta configuration has so many advantages that England, Sweden, France and Russia, among others, are building delta aircraft. In the United States, Douglas is using a deltalike shape for its F4D Skyray and again for its A4D Skyhawk. Ryan Aeronautical selected the delta wing for its new X-13 Vertijet aircraft that takes off straight up. Other deltas are on the way.

The real exponent of the aircraft that is shaped like an arrowhead, however, is Convair, builder of the F-102A. Convair used the wing for its Sea Dart seaplane and also for its XFY-1, the turboprop fighter that takes off and lands on its tail. The Convair designers in San Diego regard it as the logical shape for tomorrow's planes



Popular Mechanics' drawing made from designs by Lee A. Ohlinger of Northrop Aviation, Inc.

Giant delta-winged, atom-powered jet transport of the future will be refueled by lead-shielded tank-like vehicles. Operators inside vehicles see through TV iconoscope cameras and do work with robot arms. Trailer under plane contains shielded coffin to receive spent but still radioactive slugs of plutonium which will be replaced with fresh fuel

Gray shadow above is present-day B-36. Lines around it show possible evolution of shape into atom-powered plane. Longer fuselage would increase distance between atomic reactor, crew and passengers

XR

SEPTEMBER 1956 35 CENTS

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UND

REG. TRADE MARK. GREAT BRITAIN, No 440626 REG U S PAT

Our Newest
JET BOMBER...
an artist's conception
of the delta B-58
—See page 89

What's it like to own a $10,000 car?
Read the OWNERS REPORT on the
CONTINENTAL MARK II

ANTARCTIC ALBUM
Eight pages of color photographs
from the bottom of the world

How to take pictures indoors
without flash

NOVEMBER 1953 35 CENTS

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UNDERSTAND IT

HELICOPTER TUG—
page 110

In This Issue

FORTUNES FROM IDEAS

What the Owners Say About the NASH

For the Craftsman

Christmas Toys You Can Make

If Your House Were

Official tests show $40 basement
Even your car offers some

JUST at dawn, one morning recently, you and the house you live in and the car you drive were atom-bombed. It was done by proxy in a nuclear-device test shot at the Nevada Proving Grounds near Las Vegas.

Your home was accurately represented by two neat white frame houses of which a twin could be found in almost any American block. They were colonial houses of standard construction, the kind you'd pay about $20,000 for.

Among the 59 automobiles within two miles of the explosion that morning were cars closely resembling in color, model and make the one in which you might find yourself if an enemy bomb dropped.

Representing you and your family were department-store dummies. Whether a bomb attack found you in bed, at

The Setup

Typical colonial house, with cars parked in yard, awaits blast 7,500 feet away. Another just like it is only 3,500 feet from bomb. Cameras in nearby towers will record how they take it. Store dummies represent family in dining room and basement shelter.

By Darrell Huff and Paul Corey

A-Bombed

shelter might save you.
protection—if you duck quick.

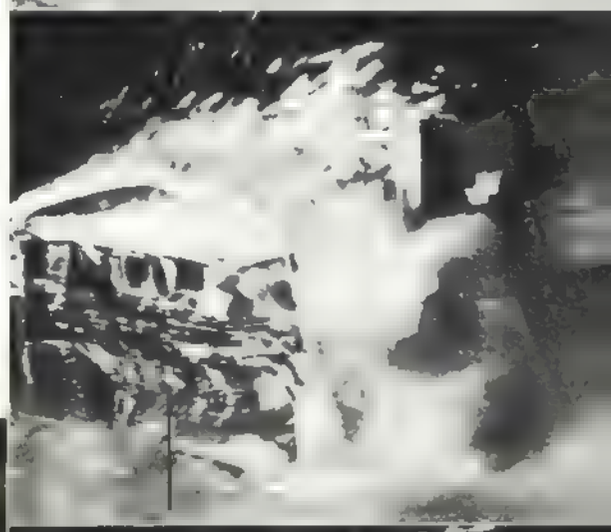
the dinner table, in your car or protected by a homemade basement bomb shelter, your situation would be accurately represented by one or more dummies.

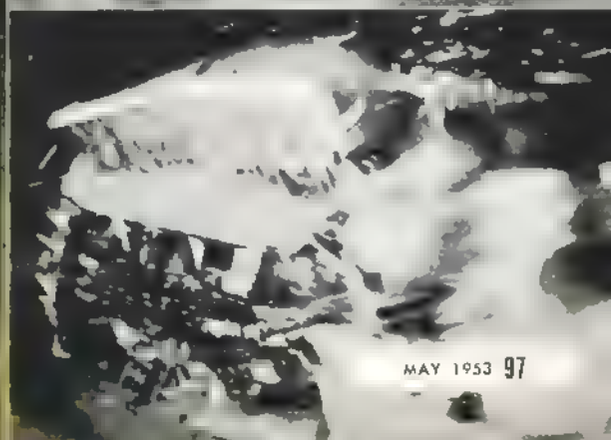
Beginning as soon as two hours after the great flash illuminated the Nevada desert, official observers began to examine the still-radioactive houses and cars. Their purpose was to learn what you could expect, what rescuers might run into and, above all, what you could do to protect yourself. Other expert inspections continued on the following days.

Some of what happened in a few seconds to stand-ins for you, your home and your car will not be clear for months. Other things became apparent quickly. It was to put these facts to work at once that some 600 civil-defense authorities,

What Happened

High-speed movies show nearest house disintegrating in two and a third seconds: Bomb flash lights scene, house bursts into flames, blast wave blows out fire almost immediately, structure is ripped into kindling. But dummies in basement shelters were unharmed.





AUGUST 1955 35 CENTS

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN [illegible]

Navy Hideout—Page 105

REPORT on the **DE SOTO**

For the Craftsman

BUILD A PLAYHOUSE
your children can live in

BOEING *B-47 Strato-Jet* BOMBER

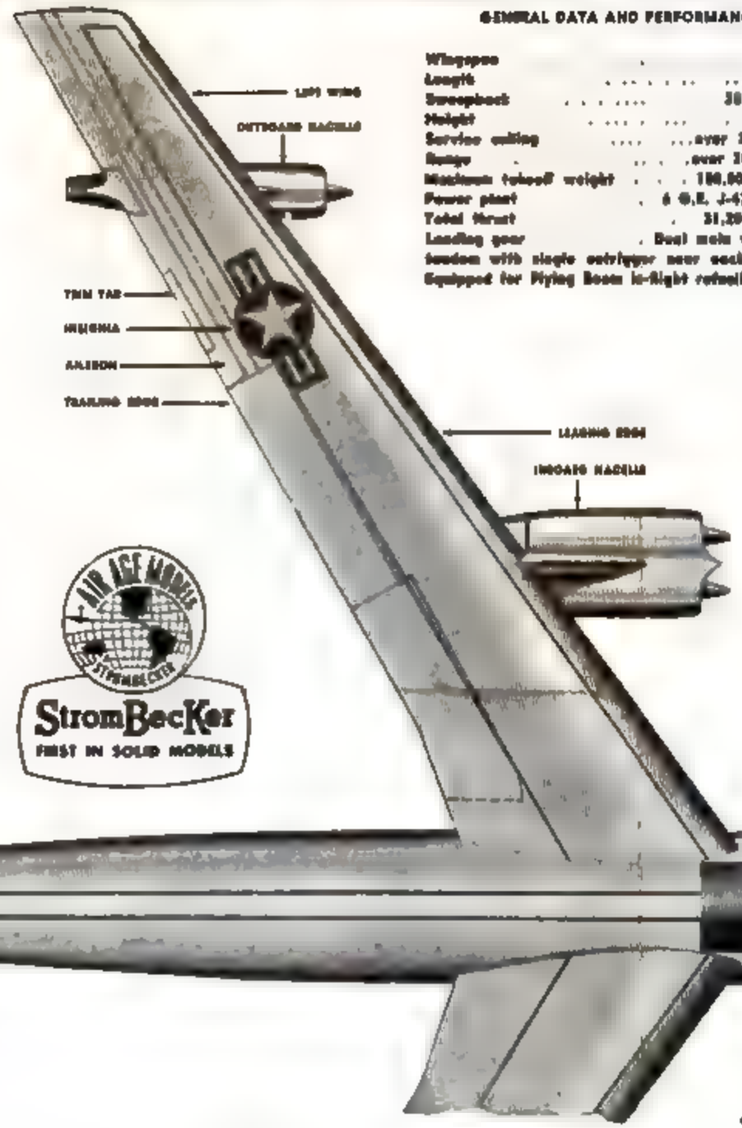
THE BOEING B-47 STRATOJET, the fastest bomber in this country — probably in the world, has been called the answer to a pilot's prayer. "She's the cleanest, sweetest ship in the air," veteran pilots will tell you.

The B-47 Stratojet is a slim, trim job with swept-back wings and tail surfaces and streamlined nacelles, mounted below the wings. It's powered by six General Electric J-47 turbojet engines that develop a total thrust of 31,200 pounds. Surprisingly, inside the cabin the engines are quiet. As one pilot put it: "These engines sound like they were chasing a pussywillow." To assist in the takeoff, the B-47 can shoot a blast from 18 JATO rockets built into the fuselage. To save the brakes a drag parachute may be used to slow the heavy bomber down after it hits the runway.

In 1947 an early model Stratojet flew from Moses Lake, Washington, to Andrews Field, Maryland (a distance of 2289 miles), in 3 hours 46 minutes — at an average speed of 607.8 mph! The plane's maiden flight took place December 17, 1947.

The B-47 dimensions are roughly similar to the famous B-29. Like the B-29 its bomb load capacity is 20,000 pounds — which makes the Stratojet a potential atom bomb carrier. But while the B-29 requires a crew of ten men, a crew of three — pilot, co-pilot, navigator-bombardier — can handle the B-47. Gunners in made easier as an enemy will find it difficult to attack the B-47 when it's flying at more than 10 miles per minute.

Besides the Boeing Airplane Company, the Douglas Aircraft Company and the Lockheed Aircraft Corporation are producing B-47 Stratojets for the U. S. Air Force.

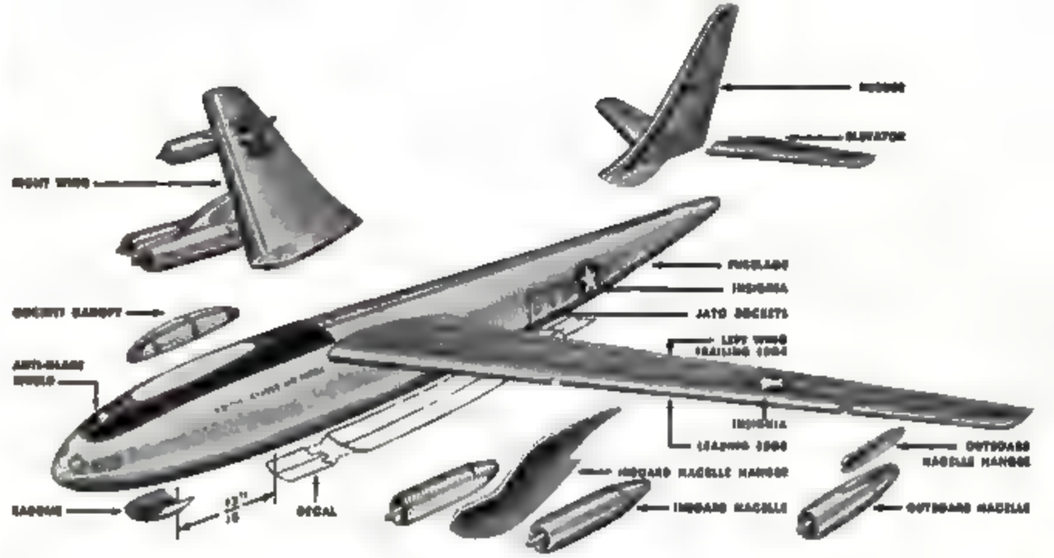


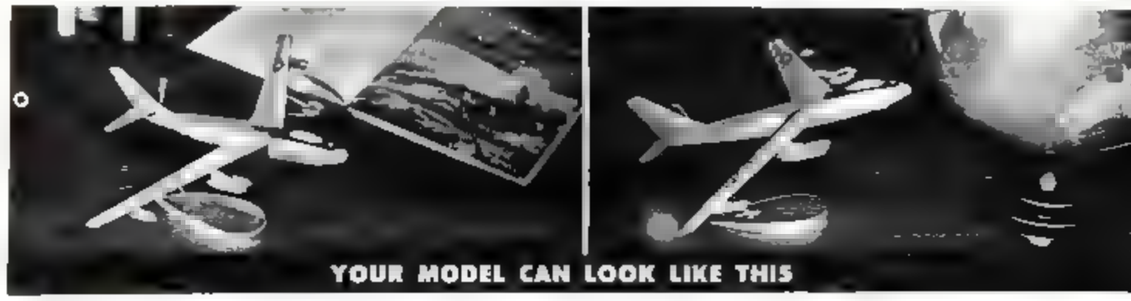
GENERAL DATA AND PERFORMANCE

Wingspan	116'
Length	108'
Sweepback	35 degrees
Height	28'
Service ceiling	over 35,000 ft.
Range	over 3500 miles
Maximum takeoff weight	180,000 pounds
Power plant	6 G.E. J-47 engines
Total thrust	31,200 pounds
Landing gear	Dual main wheels in tandem with single outrigger near each wingtip

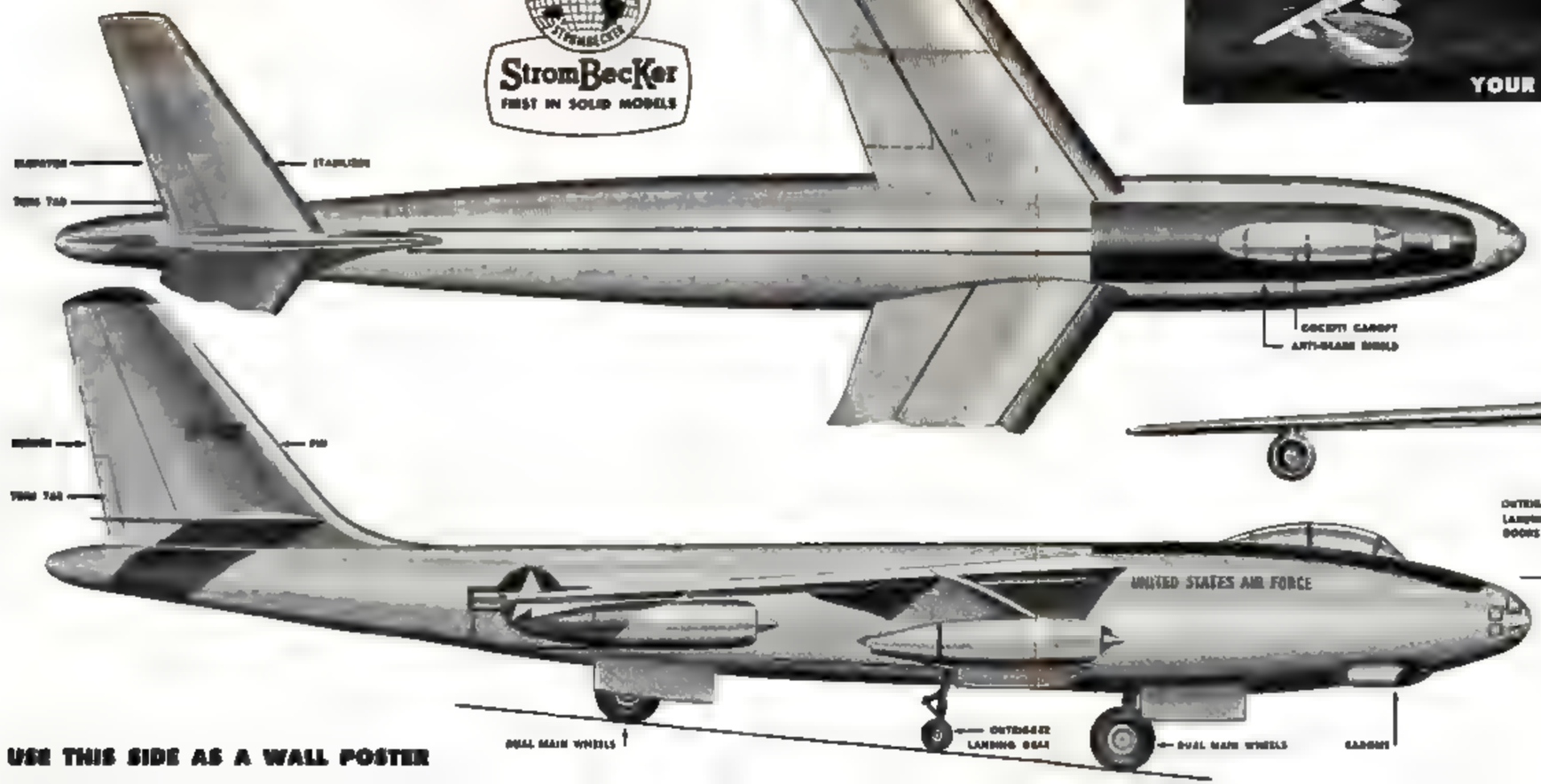
Equipped for Flying Boom in-flight refueling.

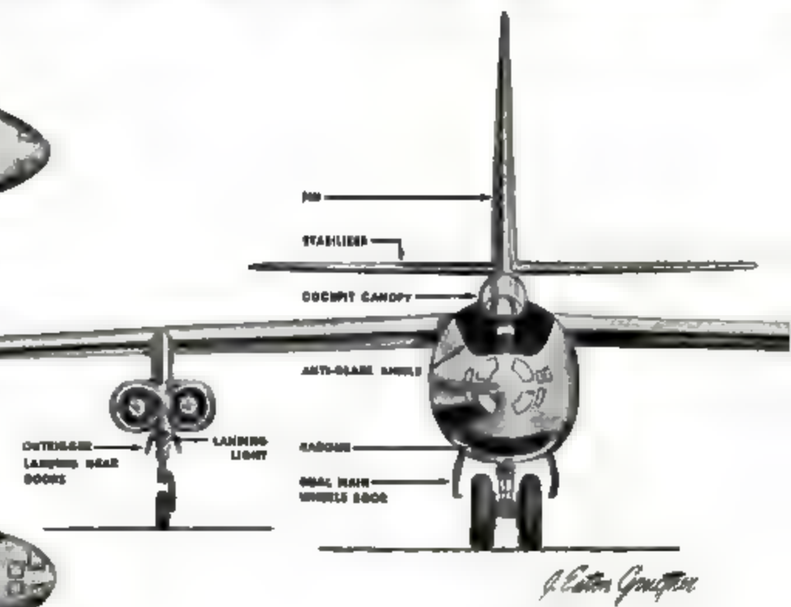
AIR AGE MODELS
STROMBECKER
StromBecKer
FIRST IN SOLID MODELS





YOUR MODEL CAN LOOK LIKE THIS





J. Eaton Gaughan

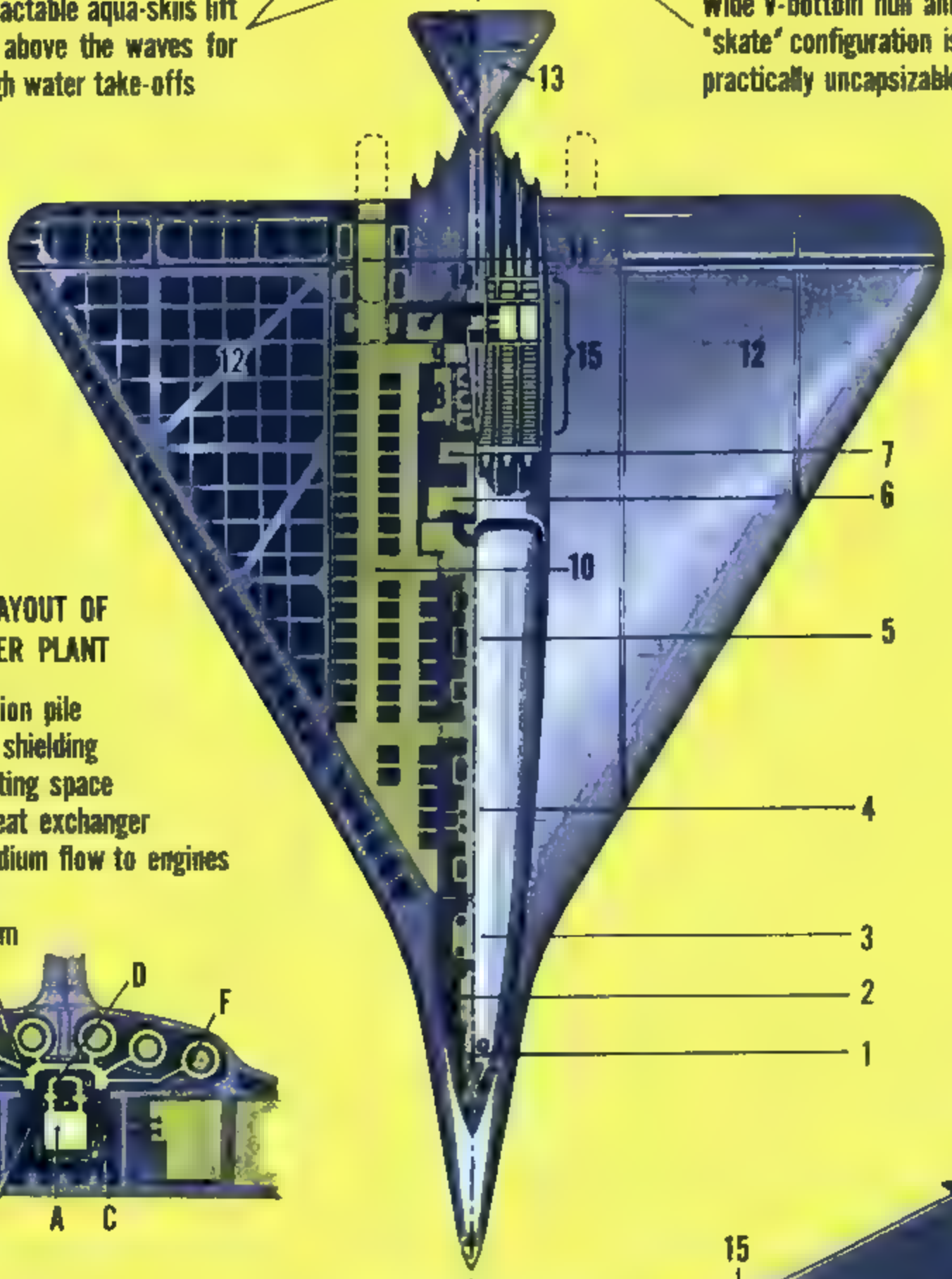
USE THIS SIDE AS A WALL POSTER

COPYRIGHT 1952 PRINTED IN U. S. of A.

DETAILS OF MI'S A-PLANE DESIGN

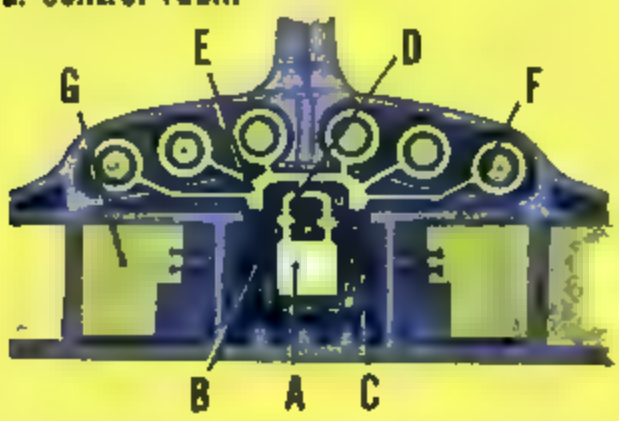
Retractable aqua-skiis lift hull above the waves for rough water take-offs

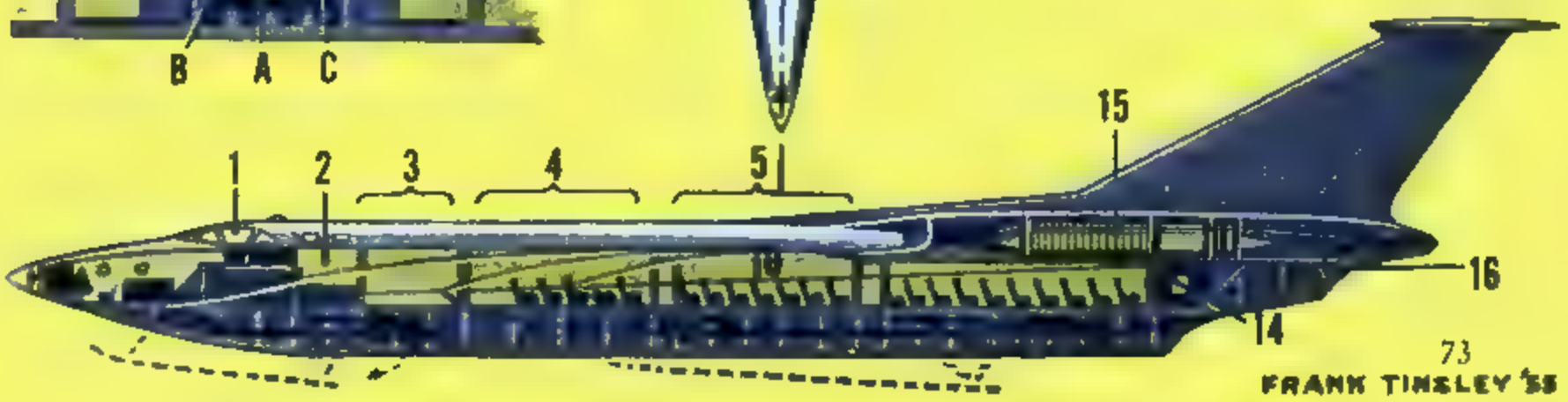
Wide V-bottom hull and 'skate' configuration is practically uncapsizable



SCHEMATIC LAYOUT OF ATOMIC POWER PLANT

A. Atomic fission pile
B. Atomic ray shielding
C. Heat insulating space
D. Shielding heat exchanger
E. Heating medium flow to engines
F. Jet engines
G. Control room

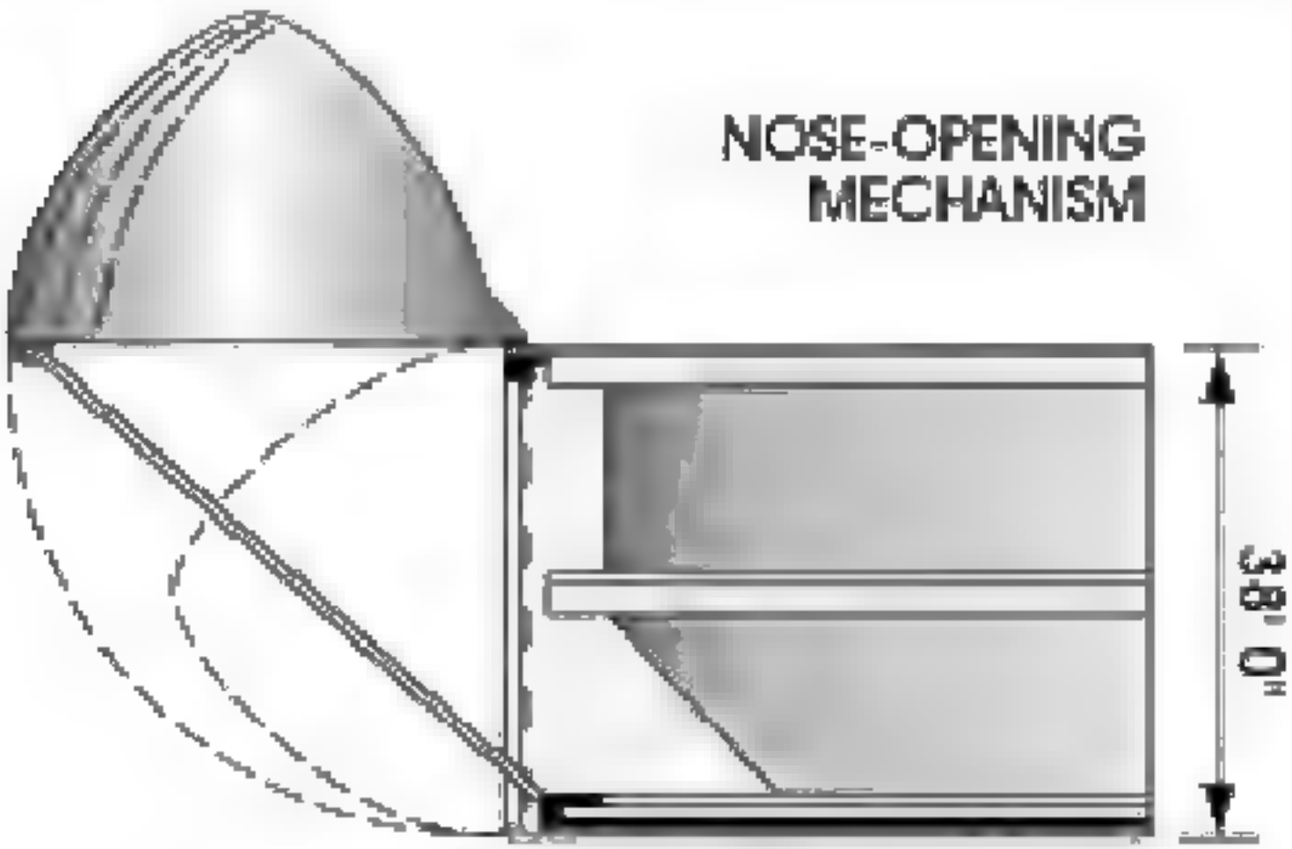


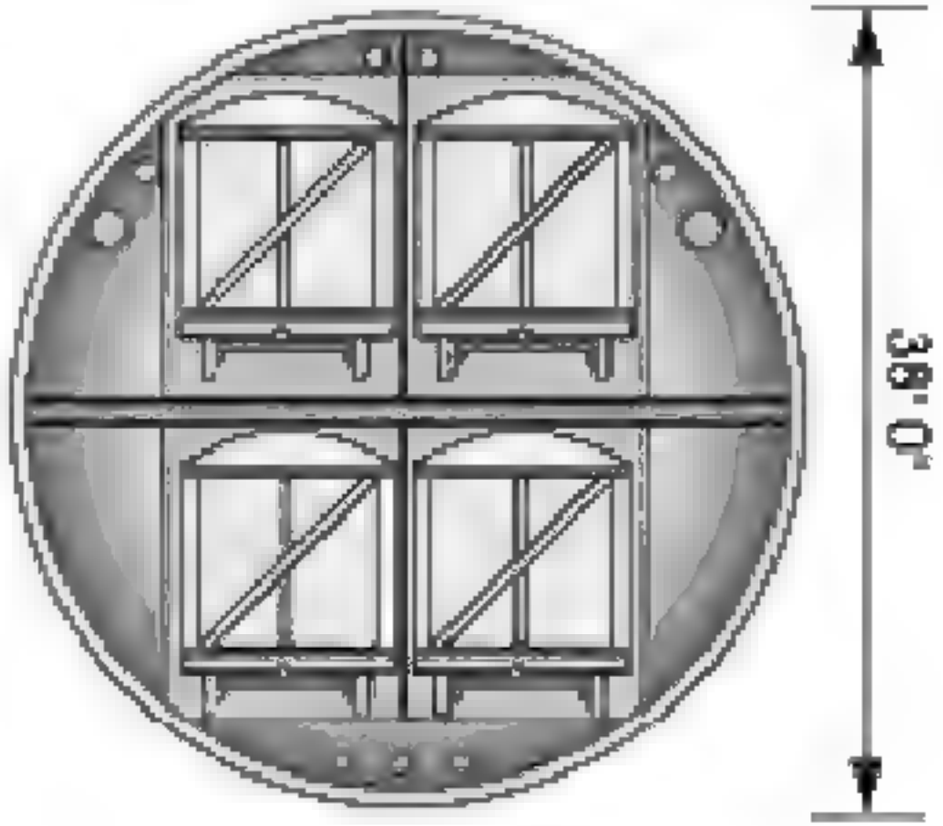


FRANK TINSLEY '55

NUCLEAR EEL SUBMARINE

A NEW CONCEPT IN OCEAN FREIGHT TRANSPORTATION





CROSS-SECTION

FOR PEACE
N7516407

MG-47
MG-45

UNITED STATES AIR FORCE
Convair
XB-36H

VTO 9

TWENTY-FIVE CENTS FEBRUARY 17, 1958

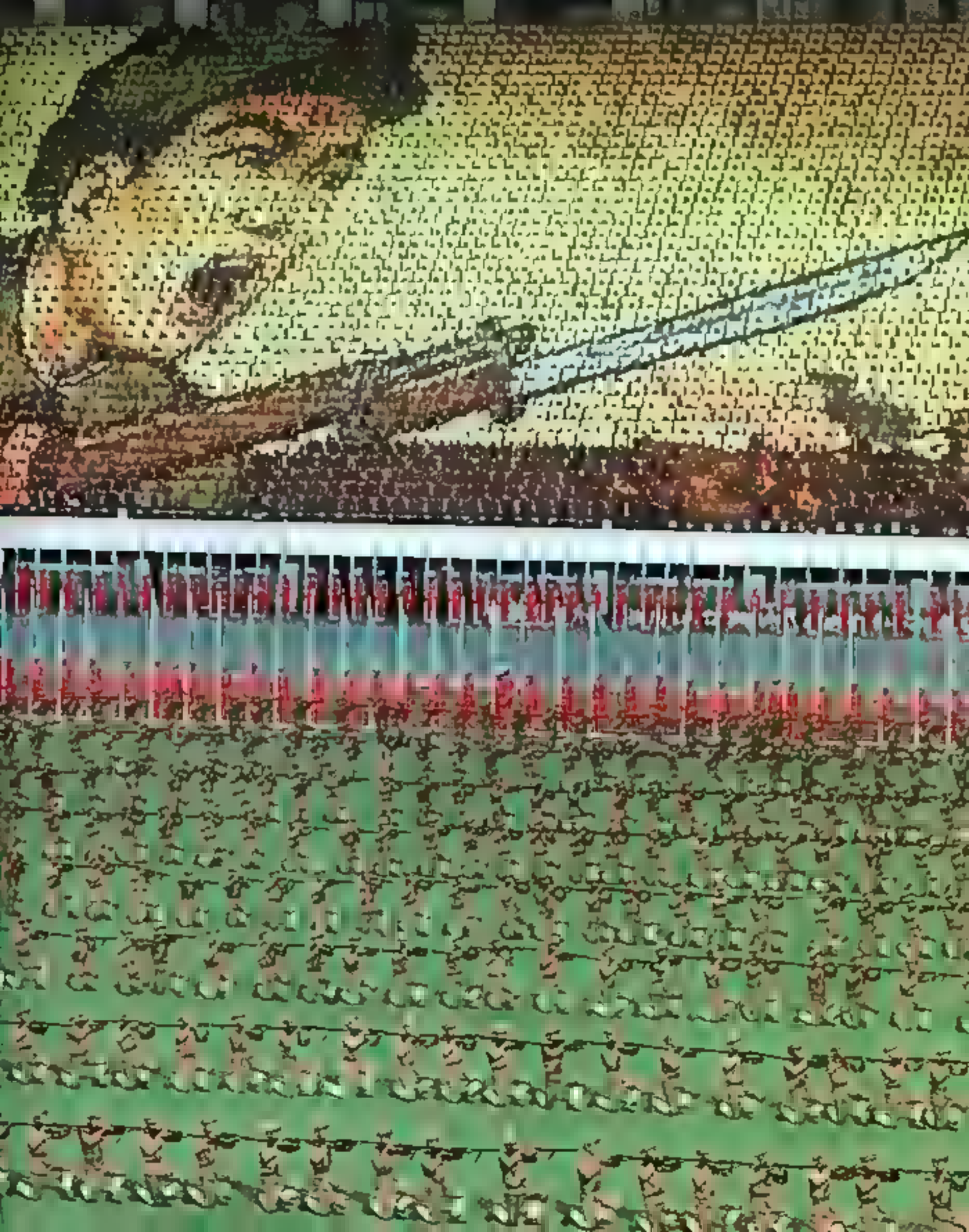
TIME

THE WEEKLY NEWSMAGAZINE

MISSILEMAN VON BRAUN

NAVY
NAVY
CORSAIR

LOCKHEED
XFV-1
LOCKHEED
XFV-1
XFV-1
NAVY



ДА ЗДРАВСТВУЕТ МОГУЧАЯ АВИАЦИЯ
СТРАНЫ СОЦИАЛИЗМА!

СЛАВА СТАЛИНУ, ВЕЛИКОМУ ЗОДЧЕМУ КОММУНИЗМА!

5 пятку в 4 года!

-выполним!

It is the stated position of the U.S. Air Force that their safeguards would prevent the occurence of such events as are depicted in this blog.

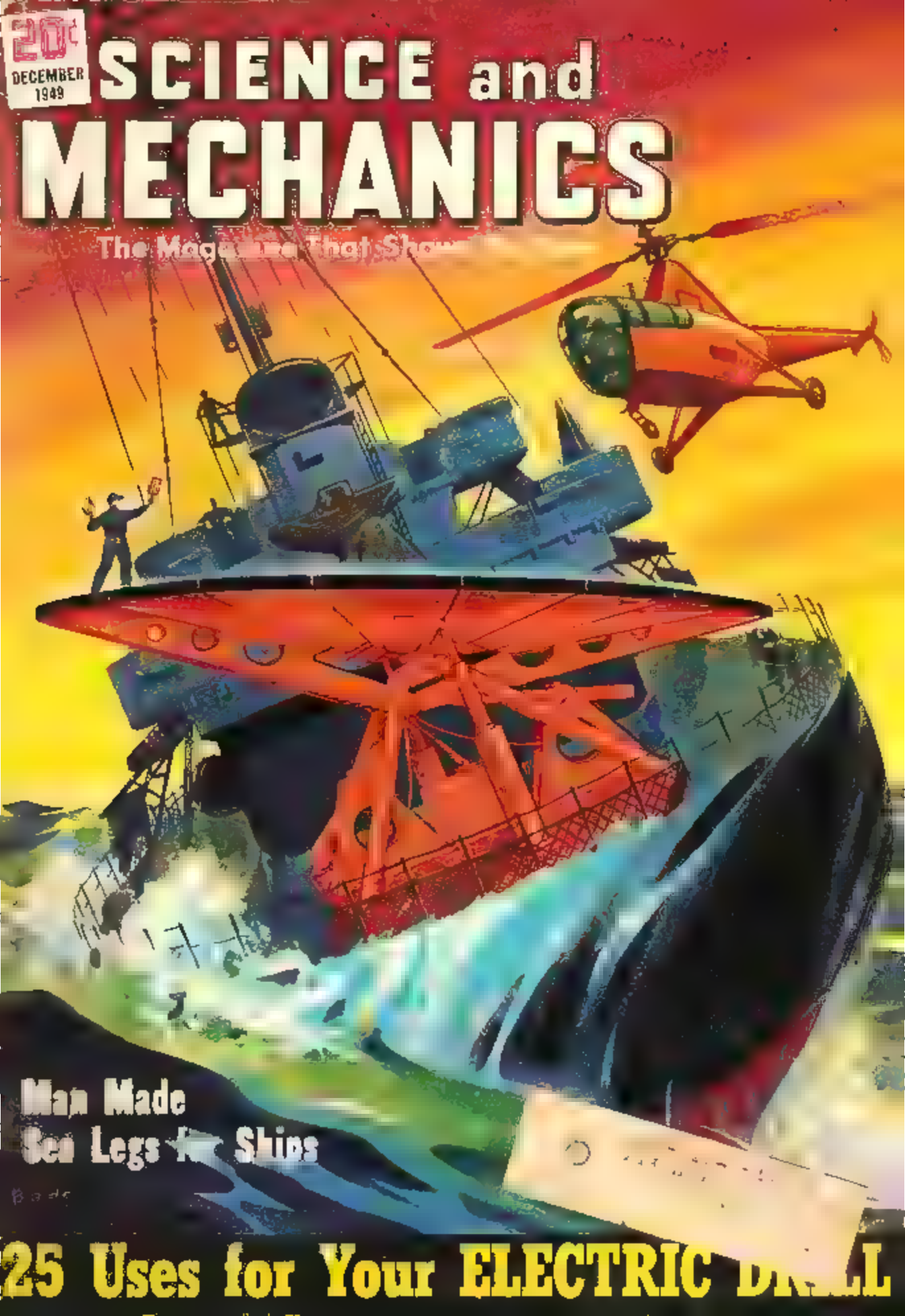
USAF
U.S. AIR FORCE

The mammouth bomber carries her own "parasite" fighters. The bomb bay will hold three McDonnell XP-85's, 15-foot jet fighters with a top speed of better than 650 mph and a ceiling above 45,000 feet. These tiny planes have no landing gear! After trans-sonic battle they return and latch on to the mother ship with their "sky hooks," as seen in the picture. The wings can fold up for compact storage.

20¢
DECEMBER
1949

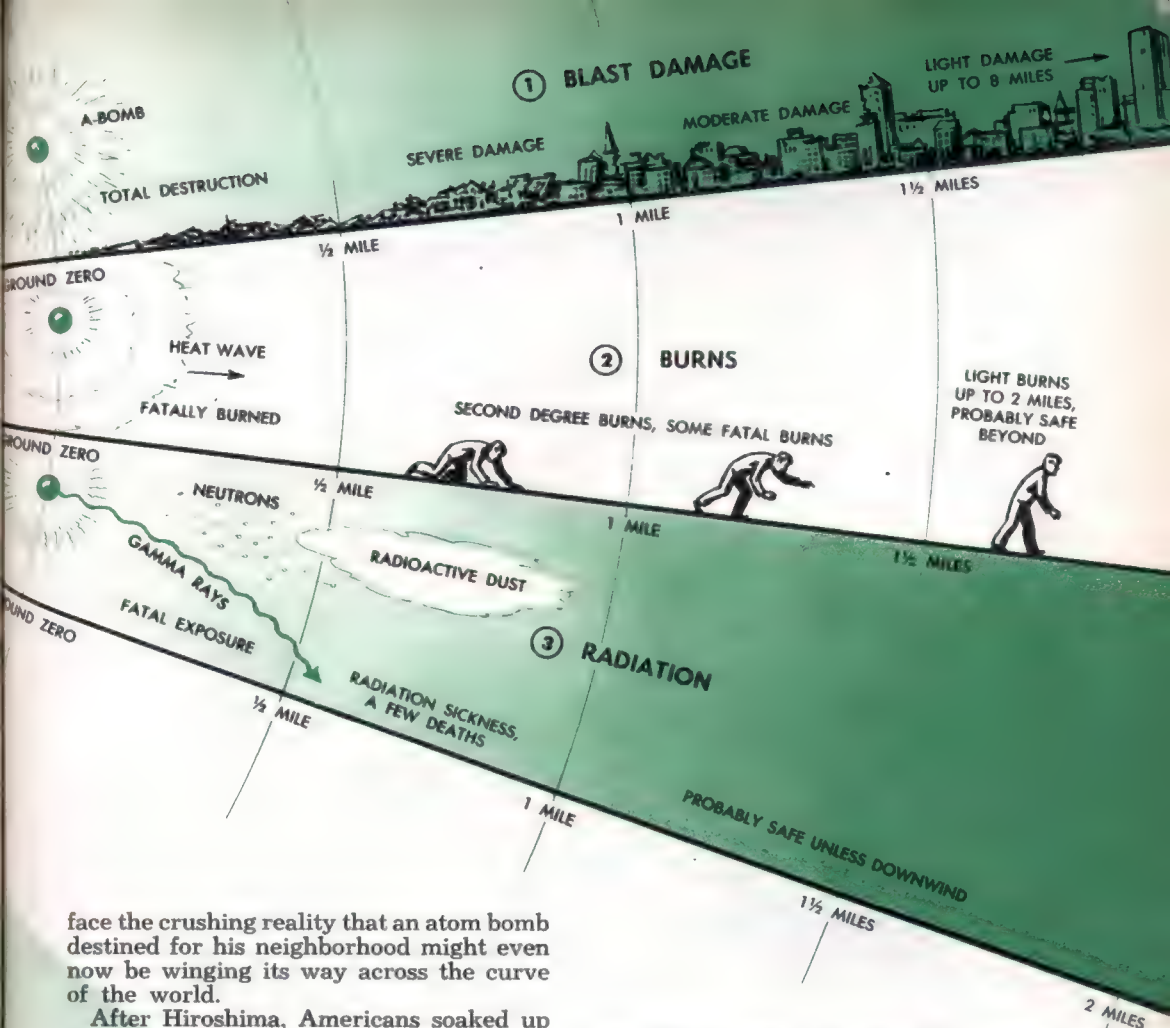
SCIENCE and MECHANICS

The Magazine That Shows



Man Made
Sea Legs for Ships

25 Uses for Your ELECTRIC DRILL



Blast, burns and radiation cause all the casualties in an A-bomb burst. In diagram above, the legends show the effect of each of these three dangers at various distances from ground zero. Whether you live or die depends upon your location and protection

face the crushing reality that an atom bomb destined for his neighborhood might even now be winging its way across the curve of the world.

After Hiroshima, Americans soaked up the idea that they owned a superweapon. "There's no defense." Now, the Manhattan stenographer and the Chicago suburbanite shrug their shoulders in resignation. They are victims of a distorted belief that an entire city can disappear in a whiff of nuclear fission. If a bomb drops, the city dweller figures, there's little he can do to save himself or his family.

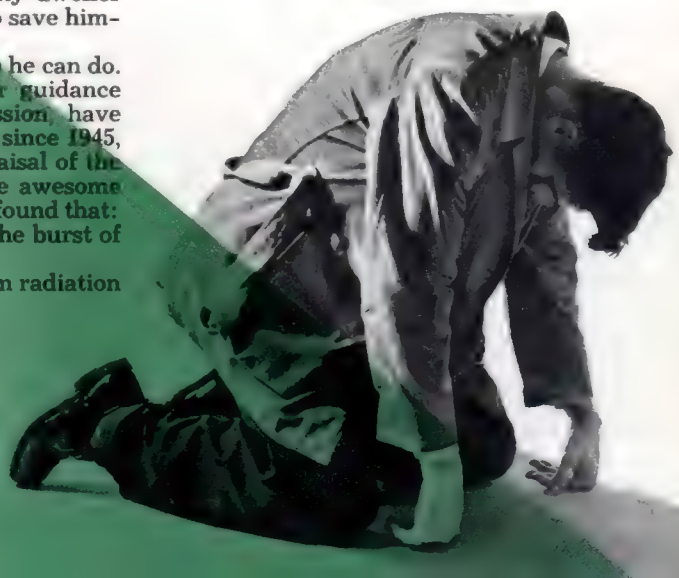
There are a great many things he can do.

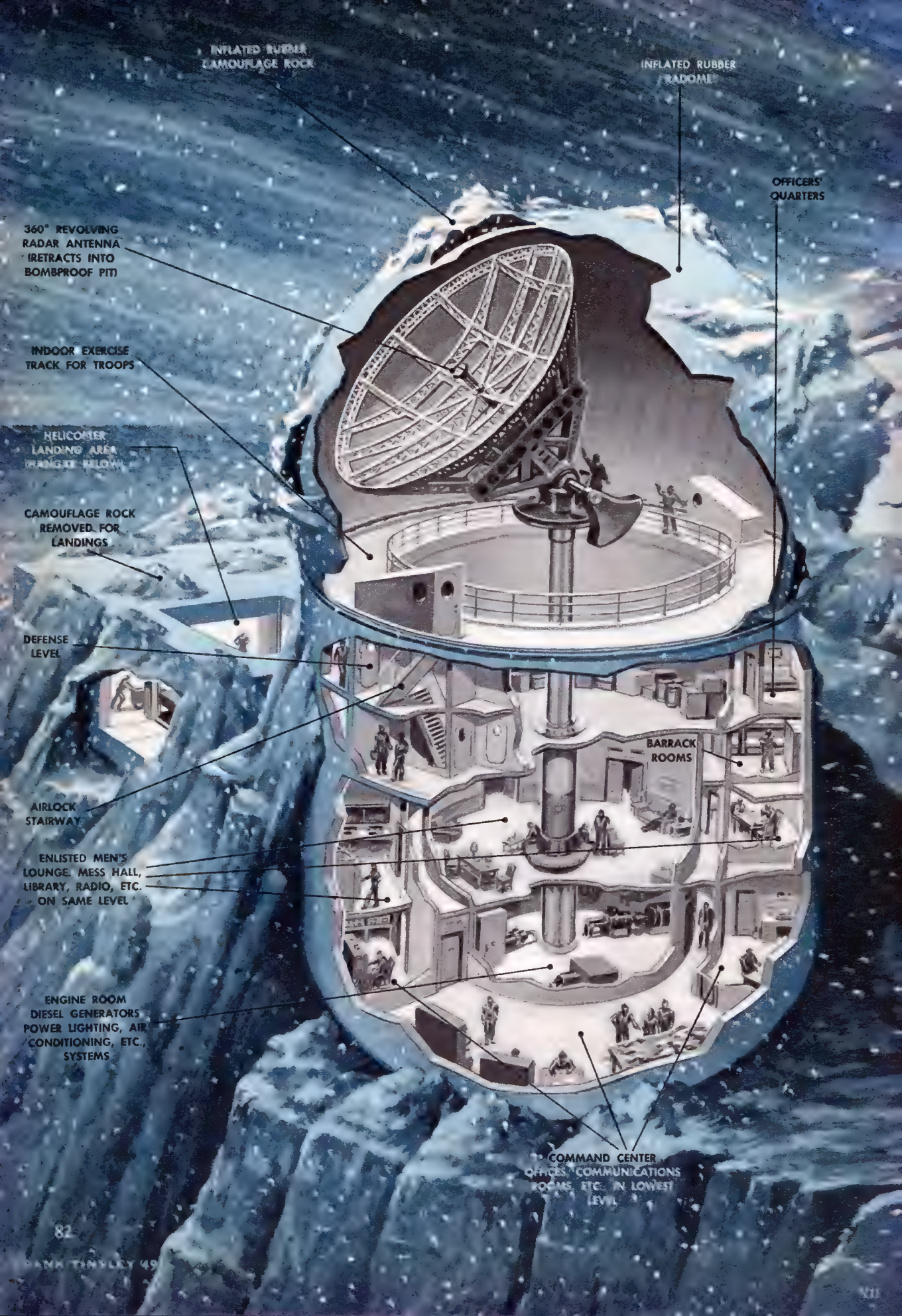
Hundreds of scientists, under guidance of the Atomic Energy Commission, have been groping into the unknown since 1945, working toward a realistic appraisal of the bomb. With full respect for the awesome power of the weapon, they have found that:

No big city will disappear in the burst of one Hiroshima-type bomb.

There is much less danger from radiation than originally supposed.

Shelters are effective. (In Nagasaki, a few hundred people who were in tunnels almost directly beneath the burst of the A-bomb are alive and healthy today.)




INFLATED RUBBER CAMOUFLAGE ROCK
INFLATED RUBBER RADOME
OFFICERS' QUARTERS
360° REVOLVING RADAR ANTENNA (RETRACTS INTO BOMBPROOF PIT)
INDOOR EXERCISE TRACK FOR TROOPS
HELICOPTER LANDING AREA (RAISED BELOW)
CAMOUFLAGE ROCK REMOVED FOR LANDINGS
DEFENSE LEVEL
BARRACK ROOMS
AIRLOCK STAIRWAY
ENLISTED MEN'S LOUNGE, MESS HALL, LIBRARY, RADIO, ETC. ON SAME LEVEL
ENGINE ROOM DIESEL GENERATORS POWER LIGHTING, AIR CONDITIONING, ETC., SYSTEMS
COMMAND CENTER OFFICES, COMMUNICATIONS ROOMS, ETC. IN LOWEST LEVEL

FRANK TINSLEY '49

TIME

THE WEEKLY NEWSMAGAZINE

PHYSICIST OPPENHEIMER

"What we don't understand, we explain to each other."

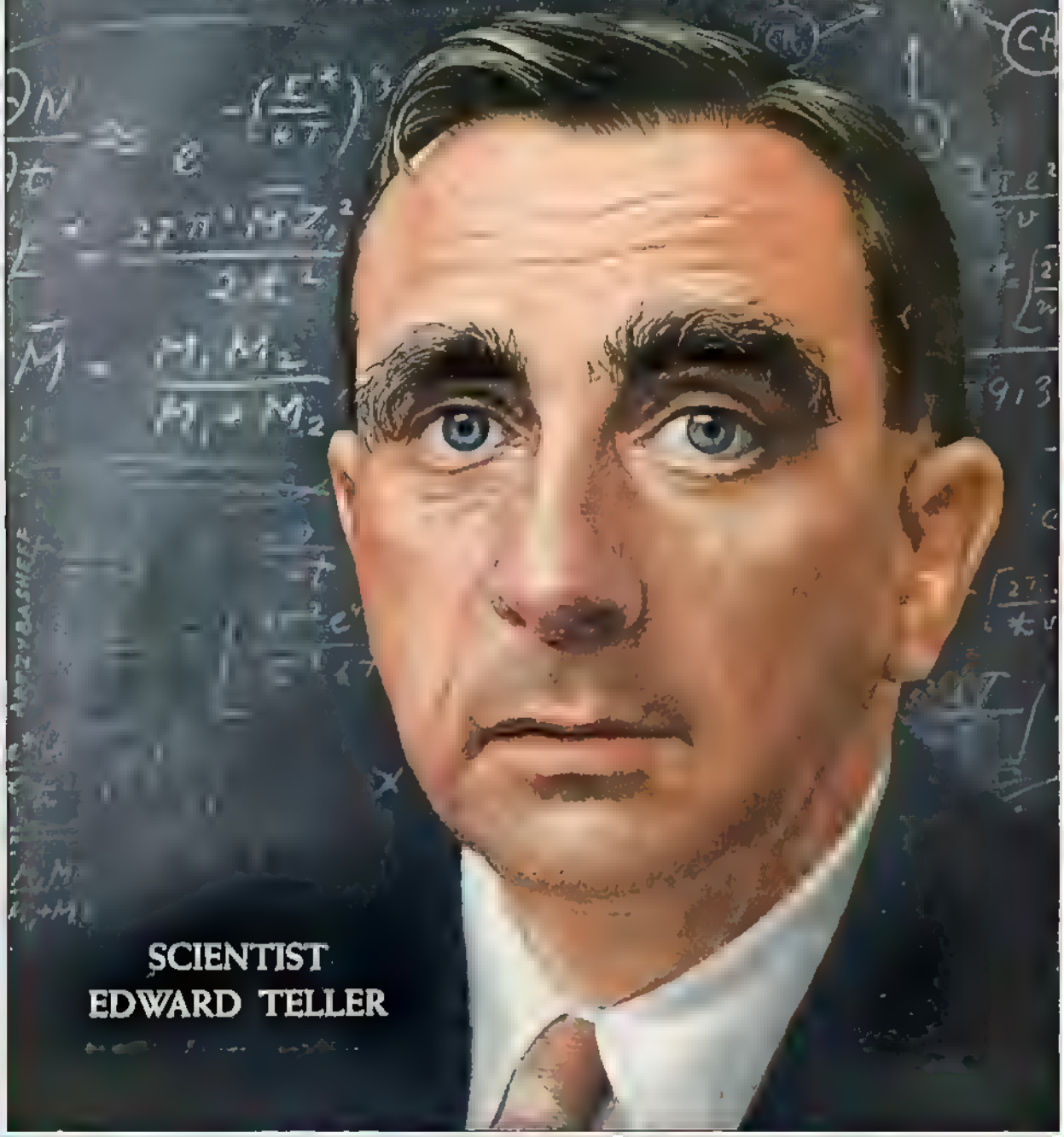
(Einstein)

TWENTY-FIVE CENTS ★ NOVEMBER 14, 1957

TIME

THE WEEKLY NEWSMAGAZINE

U.S. SCIENCE
Where It Stands Today

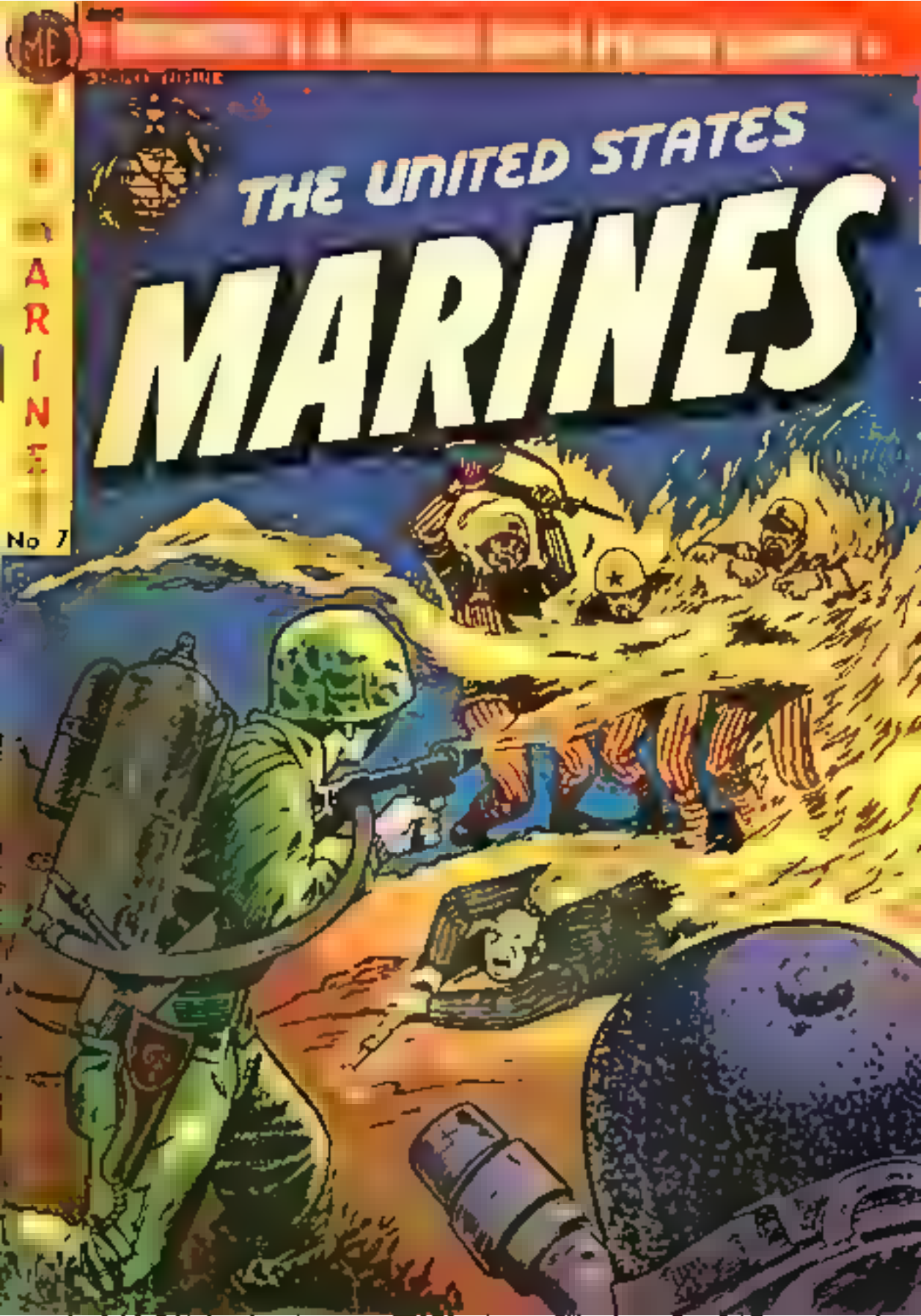


SCIENTIST
EDWARD TELLER

$7.00 A YEAR

WAR BATTLES
SHOCKING TALES OF COMBAT!
THEY WAITED... WAITED AND THEN LET GO! THE BURNING HATRED FOR THE REDS JUST POURED OUT! WHEN IT WAS ALL OVER THERE WAS A
CONVOY FOR SALE...CHEAP!
THEIR GUTS TIGHTEN, THEIR FOREHEADS DOZE WITH SWEAT... BECAUSE WHILE YOU SLEEP
THEY FIGHT BY NIGHT!
AND ONE MORE FOR MY AUNT BESSIE

THE MAN ADVENTURE
TWO-FISTED TALES
EC
No. 25
JAN.-FEB.
10¢
FELLAS! I JUST GOT WORD THEY'RE ARRANGING AN ARMISTICE!
YEAH, YEAH! TELL JONESY HERE ABOUT YOUR ARMISTICE! HE'LL BE GLAD!


THE UNITED STATES
MARINES
MARINE
No 7

FRONTLINE COMBAT

EC

No.8
SEPT-OCT

EC

WAR AND FLIGHTING MEN

While the battle rages, the Army's Seeing Eye battlevision tank records the action and transmits it back to headquarters where top brass can watch the progress of the fighting and calmly issue the commands.

FRANK TINSLEY 51

Why Don't We Have...

BATTLEVISION

Tomorrow's [illegible] may be able to tune in on the battlefield courtesy of television, relayed to headquarters by battle-going TV Seeing Eyes.

By Lt. Col. Robert Hertzberg
Signal Corps, USA

Why Don't We Have...

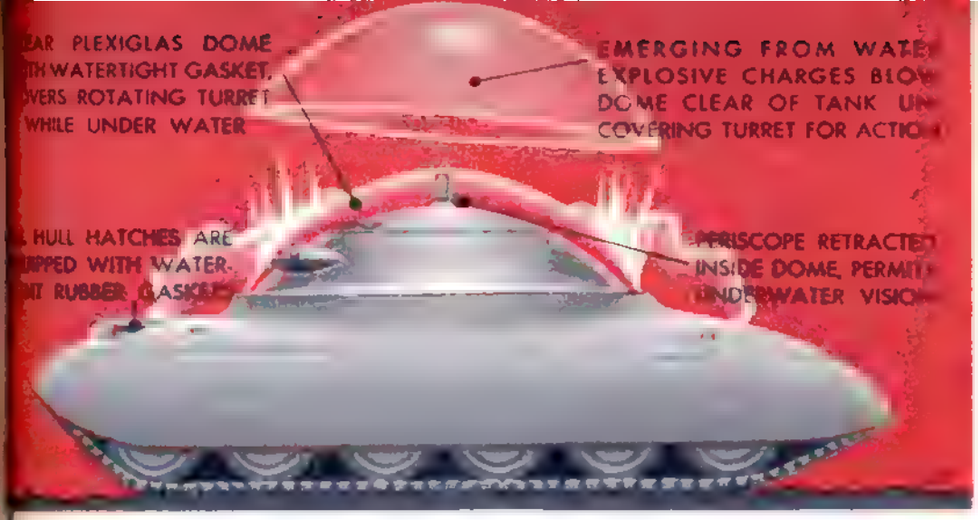
BABY ASSAULT TANKS

Tiny but deadly insect-like tri-tracks would spearhead our advancing infantry.

By Frank Tinsley

WE are living in a machine age and our wars have become mechanical, but it's still the muddy, tired infantryman who must storm the enemy's stronghold in bloody assault.

In some cases the tactical situation and nature of the terrain make this necessary. In many others, however, the brunt of the attack could just as



At far left is the Alligator, a lightly armored, open cockpit craft extremely vulnerable to shore fire. In the center is the Water Buffalo, a floating tank lightly armed with a small cannon and several machine guns. At left is the proposed model blowing its plastic bubble top.

but would prove too unwieldy for subsequent land operations. Land tanks might be floated ashore on detachable, self-propelled pontoons. Like other surface craft, however, they are subject to heavy defense fire during the process. And if one of the pontoons were hit and opened, its tank would head for the bottom like a huge, steel sinker.

"Well, then," you ask, "wot-in-ell *can* we do? Put tracks on submarines and roll them up the beach?"

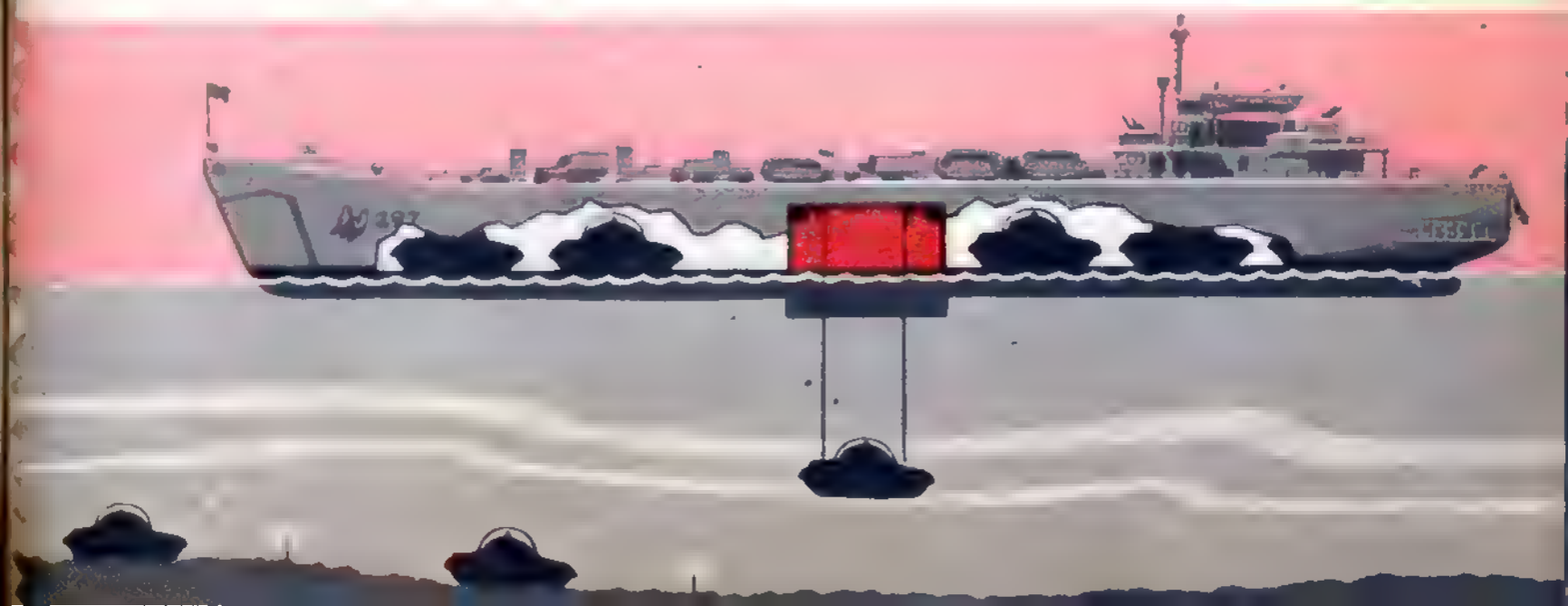
You may be closer to the answer than you think. If an adequately armored tank is too heavy to float, why not let it sink to the bottom and roll up to the beach under water? It needs only suitable sealing, a temporary air supply and a means of guiding it along passable, ocean-bed trails.

Let's take a look at the technical problems involved.

The Alligator and Water Buffalo, plus several pre-war amphibious tank designs, have proved that watertight, armored hulls can be successfully combined with practical track gear. So far as underwater sealing, air supply and sea-floor operation are concerned, a working prototype already exists. See the undersea explorer's submarine in the June '50 issue of MI. It is true that this machine is designed like a baby submarine with track gear. It has none of the armament, free-swinging turrets, etc., that a fighting tank requires. But those are problems that can be licked, too—if we really set our minds to it.

The hull, with its escape hatches, air inlet and exhaust ports, presents no great difficulties. All have been long since solved in standard submarine practice. The main problem lies in the turret. Here we are faced with an entirely separate unit, mounting a heavy, long-barreled gun. It must be capable of 360° rotation and its gun must have a 90° elevation. Mounted on a motor-driven, ball-bearing traversing ring, it is difficult to render waterproof, especially since the gun and turret must be free to swing into action as soon as the tank emerges from the water. And whatever freeing is necessary should be done from inside the tank.

If we can't waterproof the turret itself, why not cover the whole thing with something that can be waterproofed! Let's take our cue from aircraft design. The modern jet fighter faces a similar problem in a different medium. The pilot's cockpit is like a fish bowl in reverse. Surrounded by the thin, icy air of extreme altitudes, it must be kept filled with heavy, breathable air, warmed to the proper temperature and enriched with oxygen. This means that the cockpit enclosure must be airtight, strong enough to resist wide differentials in pressure and transparent enough for good visibility. Also [*Continued on page* 190]



Why Don't We Build...

UNDERWATER TANKS

We need such a weapon for beachhead invasions . . .
we have already solved its technical problems.
By Frank Tinsley

EVEN at the outset of our World War II campaign of island conquest in the Pacific, it became evident that some form of armor was needed to spearhead landing operations. The old technique of wooden landing barges and surf-spattered Marines was obviously inadequate. To pit unprotected flesh and blood against an array of underwater obstacles, mines and wire entanglements, backed up by well concealed and heavily bunkered machine-gun nests, mortars and artillery, was a murderous waste of expensively trained men.

An attempt to answer the problem was found in the Alligator, an amphibious tractor developed by Donald Roebling for rescue work in the Florida hurricane

continued on page 76

FRANK TINSLEY '50

Raytheon's Electronic Ability Brings You Truly Dependable Television Sets

For truly dependable TV performance and pictures for outstanding engineering and cabinet design . . . see the new Raytheon television sets. They assure you the quality of television you deserve and want.

Raytheon's electronic pioneering and leadership goes back twenty-five years. It includes vital achievements in radio, radar, tubes, television, broadcasting equipment. All this is your *proof* of Raytheon dependability.

So for honest value for your television dollar, be sure to see these superb new sets with many exclusive features, now at your Raytheon dealer's. Or write us for illustrated free booklet.

THE MAYFAIR—Model C-17. Smart modern design in richly grained oak finish. 21" rectangular black picture tube. Exclusive Raytheon continuous tuner. Exclusive Raytheon built-in antenna. Finely adjusted magnetic speaker with built-in tone balance control. 20 tubes plus 2 rectifier tubes. A typical example of Raytheon engineering.

Models priced from $189.95 to $625.00
Slightly Higher West

Dependably Built for Dependable Performance

October 7, 1950

RAYTHEON TELEVISION

Manufactured by BELMONT RADIO CORPORATION • 5921 West Dickens Avenue • Chicago 39, Illinois • Subsidiary of Raytheon Manufacturing Company

A Double—walled Bunker for Safety above Ground

In rocky or watery areas where you cannot dig down far enough to sink a metal shelter, the shelter shown here provides a good solution. It is put together from double walls of concrete blocks built on a footing of reinforced concrete. The gap between the walls is filled with well-tamped earth or gravel. The roof supports a 28-inch pile of bank-run gravel

of grass. Sheets of roofing felt, set in tar, line the top a roof, turning it into a pan which will catch water and the corners through small pipes.

Here again a baffle wall forms a corridor between the of the shelter and the safe inner sanctum. The outside cor with some of the family's needs -closed cans of drinkin gency tools and tightly sealed pails for garbage and huma concrete blocks should be stacked up in the corridor to outside door against radiation. A blower mounted near t shelves sucks in fresh air, and a pipe jutting up at the f as an outlet.

Except for the concrete floor, the shelter could be buil prising do-it-yourself family. The blocks can be hollow

Big Pipe in the Backyard under Three Feet of Earth

If you have no basement—or decide not to use it—you can dig in outside and construct a reinforced concrete bunker in the ground, then cover it up with earth. But reinforced concrete requires the services of a contractor since it must be mixed, poured and cured with precision to make it safe. An easier and less expensive backyard shelter is shown here. It consists of a section of galvanized corrugated steel which almost any steel distributor can provide because it is of a standa used in road underpasses. The pieces for the hatchway cut to order. The shelter should be closed in at bot bulkheads and fitted with the entrance before being cement blocks jutting more than halfway across the wi serves as a shield against any radiation which might g entrance hatch.

Although you can do much of the work on this she will probably want to hire a contractor to dig out yard with a bulldozer and to cover up the shelter wh You will also need the services of a welder to seal help construct the entrance. Materials for this shelter c $700. The fees for the welder and the bulldozer migh $150. The completed shelter would reduce radiation to

Simple Room in Basement Built with Concrete Blocks

One of the simplest and least expensive ways to build a shelter is to wall off part of the cellar with concrete blocks. The drawing above shows such a shelter in cutaway form. The plans on the opposite page explain how it is put together. First, you pick a corner where there are no windows, mark your dimensions on the floor and put down a layer of wet mortar at least 3/8 inch thick to hold the first row of cement blocks. Build up layers, consulting a how-to-do-it book or manufacturer's pam-

straight and even. Leave four ventilation holes in s
when you are within 16 inches of the ceiling to leav
roof. Build baffle wall (next to the garbage cans a
height as other walls. Baffle will stop most radiation,
light and does not go around corners, from enterin

Place three upright 4″x4″ posts against one base
left in drawing, above). Nail a 4″x6″ beam across the
mortar is dry lay the ceiling joists on edge with 12
their centers and with one end of each joist resting o
other end resting on the block wall, 4 inches from the
maining 4 inches, put blocks laid on edge to form top

Nail the first planks of one-inch sheathing across
two layers of concrete blocks, unmortared, on top o
forward a foot or two at a time, adding sheathing a
roof is completed.

THE PRESIDENT

September 7, 1961

My Fellow Americans:

Nuclear weapons and the possibility of nuclear war are facts of life we cannot ignore today. I do not believe that war can solve any of the problems facing the world today. But the decision is not ours alone.

The government is moving to improve the protection afforded you in your communities through civil defense. We have begun, and will be continuing throughout the next year and a half, a survey of all public buildings with fallout shelter potential, and the marking of those with adequate shelter for 50 persons or more. We are providing fallout shelter in new and in some existing federal buildings. We are stocking these shelters with one week's food and medical supplies and two weeks' water supply for the shelter occupants. In addition, I have recommended to the Congress the establishment of food reserves in centers around the country where they might be needed following an attack. Finally, we are developing improved warning systems which will make it possible to sound attack warning on buzzers right in your homes and places of business.

More comprehensive measures than these lie ahead, but they cannot be brought to completion in the immediate future. In the meantime there is much that you can do to protect yourself—and in doing so strengthen your nation.

I urge you to read and consider seriously the contents of this issue of LIFE. The security of our country and the peace of the world are the objectives of our policy. But in these dangerous days when both these objectives are threatened we must prepare for all eventualities. The ability to survive coupled with the will to do so therefore are essential to our country.

John F. Kennedy

Fallout Shelters

YOU COULD BE AMONG THE 97% TO SURVIVE IF YOU FOLLOW ADVICE ON THESE PAGES . . . HOW TO BUILD SHELTERS . . . WHERE TO HIDE IN CITIES . . . WHAT TO DO DURING AN ATTACK

PEACE— OR ELSE!

Radar and television controlled atom bombs, directed by distant ground pilots could devastate New York. Radar interceptors would be countermeasure

BY WILLY LEY

HUMANITY is faced with the greatest decision it has ever had to make. The atomic bomb, in three gigantic flashes, has transformed our planet into a world which has only one choice left. Earth has become a world of Either/Or.

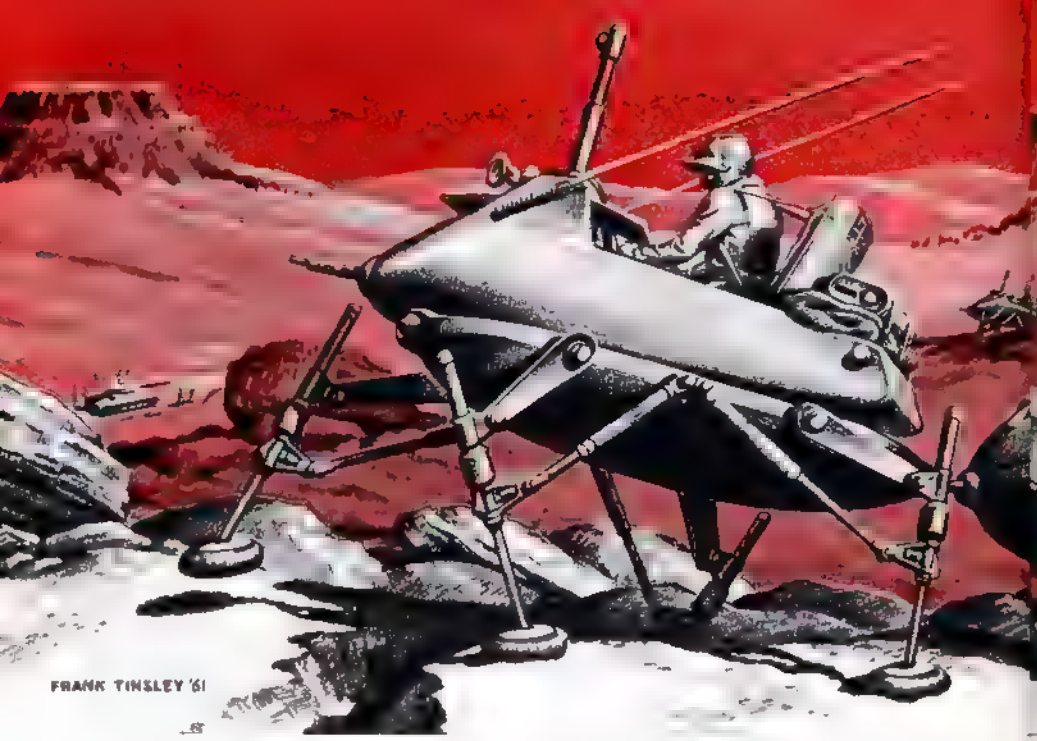
Either—we are firmly determined that there shall be no war, and spend as much energy, thought and money on the problem of preventing it as we now spend in preparing for it. In that case—and if we

USAF

U.S. AIR FORCE
FW-076
42075

NACA
U.S. AIR FORCE
25778
FW·778

NASA



HANNIBAL crossed the Alps on elephants. Future combat troops may have even greater maneuverability if our engineers' plans for a mechanical walking train become reality.

COMBAT VEHICLE "WALKS" LIKE A MAN

An Original MI Design by FRANK TINSLEY

IMAGINE, if you can, machines that walk—articulated mechanical "mule trains" that could thread a tortuous path through boulder fields and forests and negotiate mountain passes with heavy loads of freight. Sound crazy? Well, our Armed Forces and Space Authority are dead serious about it. Right now engineers are perfecting pilot models that are already walking around laboratories and testing grounds.

One of these devices is the solar-powered Moon Rover vehicle intended for remote-controlled reconnoitering of the moon. Designed by the engineers of Space-General Corporation, the Moon Rover will be lofted to our lunar satellite by an Atlas-Centaur rocket. Upon landing, the six-legged explorer will unfold, raise its panel of sun batteries and, with the power thus generated, march off about its business at a brisk three mph, picking up geological samples with pincer-like fingers, analyzing them and flashing the information back to earth.

The six cam-driven legs of Space-General's moon scout are arranged in pairs—two sets in the rear and one in front—and function so that half of their number are always planted firmly on the ground. A small steering motor turns the vehicle by swinging the front legs in the direction ordered. The joints of the Rover's insect-like limbs and all the machine's connecting points are self-lubricating and enclosed in hermetically sealed bellows.

An interim device, the Rover is intended to serve as a midget forerunner of later, manned vehicles. Our primary interest in Space-General's gadget lies in its use of legs for propulsion, instead of wheels, runners or the like.

An even more ambitious walking machine has been conceived by a Professor of Engineering at the University of Michigan, Joseph E. Shigley. His Army Walker has 16 legs and is designed to walk at ten mph with a man inside it. With the machine still at the experimental level of development, the professor feels that his principal task is to increase its walking efficiency by recovering and reusing some of the power now lost in leg lifting. To effect this he is studying the power-storing possibilities of the flywheel and the hydraulic accumulator. His present thinking envisions a vehicle supported by expandable legs which are mounted in groups of four at either end of two fore-and-aft axles. At any given moment four of these legs—one in each group—will be planted on the ground; another four will be lifting for a new step; four others will be fully raised; and the final four will be descending.

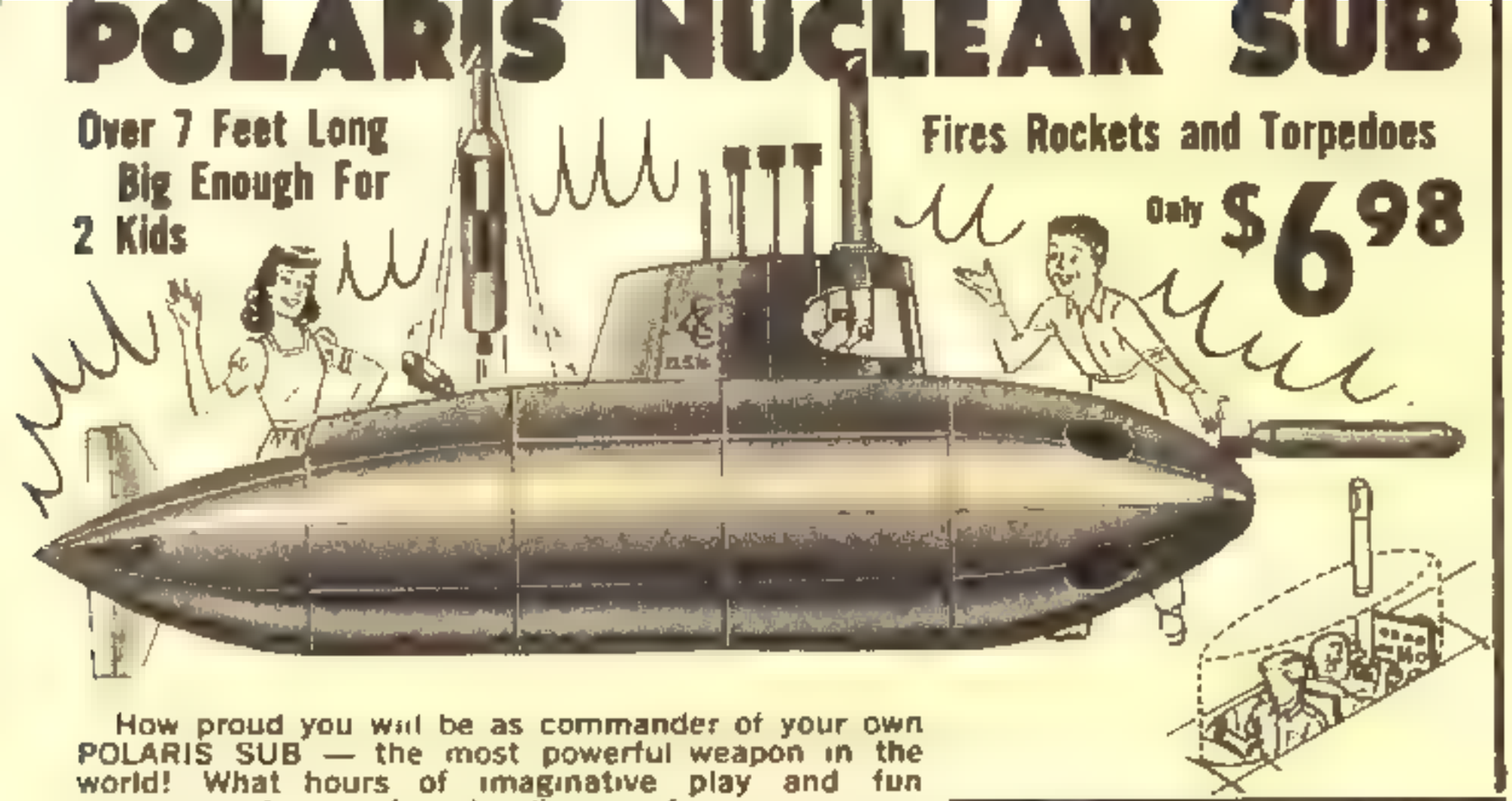
MI's own version of a mechanical mule train is shown in the accompanying illustrations. Though rather more complicated than current designs, it is,

POLARIS NUCLEAR SUB

Over 7 Feet Long
Big Enough For
2 Kids

Fires Rockets and Torpedoes

Only $6.98



How proud you will be as commander of your own POLARIS SUB — the most powerful weapon in the world! What hours of imaginative play and fun as you and your friends dive, surface, maneuver, watch the enemy through the periscope and fire your nuclear missiles and torpedoes! What thrills as you play at hunting sunken treasures in pirate waters and exploring the strange and mysterious bottom of the deep ocean floor!

FEATURES

- Over 7 feet long
- Seats 2 kids
- Controls that work
- Rockets that fire
- Real periscope
- Firing torpedoes
- Electrically lit instrument panel

HOURS AND HOURS OF ADVENTURE

Sturdily constructed of 200 lb. test fibreboard Comes complete with easy assembly instructions. Costs only $6.98 for this giant of fun, adventure and science. (Because of the POLARIS SUB'S giant size we must ask for 75c shipping charges.)

MONEY BACK GUARANTEE

Order today and we will rush your POLARIS NUCLEAR SUB to you Use it for 10 full days If you don't think it is the greatest ever—the best toy you ever had —just send it back for full purchase price refund

10 DAY FREE TRIAL

HONOR HOUSE Dept. 131PS13
LYNBROOK, NEW YORK

Rush me my POLARIS NUCLEAR SUB. I can use it for 10 days and if I am not delighted return it for full purchase price refund.

☐ SEND IT PREPAID I enclose $6.98 plus 75c to help cover shipping charges.

☐ SEND IT C.O.D. I enclose $1 good-will deposit and I will pay postman $5.98 on delivery plus C.O.D. postage.

NAME_____

ADDRESS_____

CITY_____

ZONE_____ STATE_____

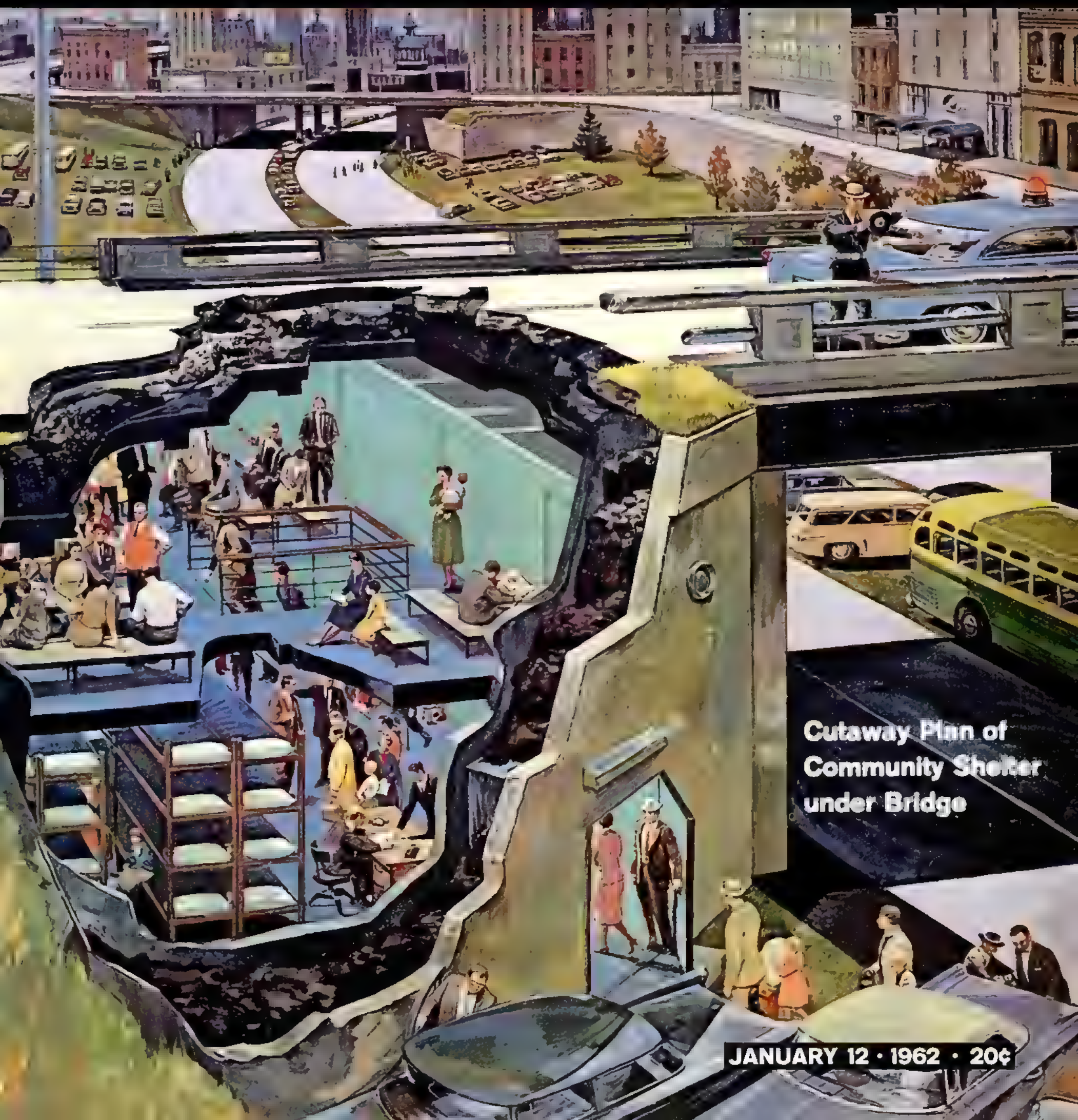
N.Y. State residents please add 14c sales tax

Lead-Lined Suit specially designed to protect against radioactivity in an A-blast, was designed by Leo Pauwela of Los Angeles and is modeled here by his son. "If it doesn't land on us, we're safe," they say.

LIFE

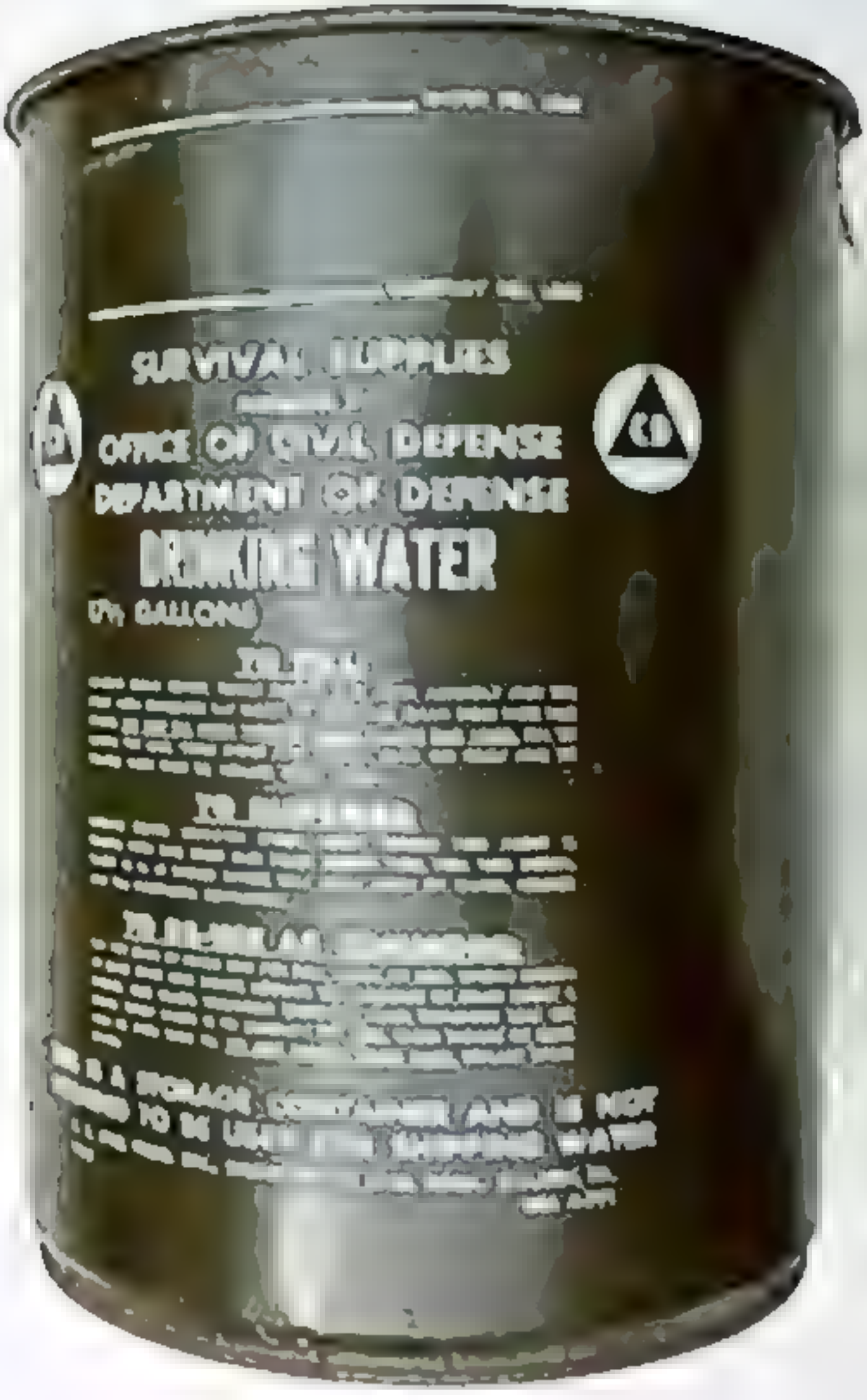
New Facts You Must Know about Fallout:

THE DRIVE FOR MASS SHELTERS



Cutaway Plan of Community Shelter under Bridge

JANUARY 12 · 1962 · 20¢


SURVIVAL SUPPLIES
OFFICE OF CIVIL DEFENSE
DEPARTMENT OF DEFENSE
DRINKING WATER

Family in the Shelter, Snug, Equipped and Well Organized

Inside the Kelsey-Hayes shelter which he and his son have put together (*pictures at top*), Art Carlson and his family demonstrate how a family might divide the responsibility for making it safe and livable. Here Carlson shows a table full of equipment which he would care for. It includes emergency tools like shovel and pick for digging out through debris, a fire extinguisher, first aid kit and bottled gas stove for cooking. Mrs. Carlson sits next to the larder of canned foods and the supply of water which she will keep fresh by frequent changes. Daughter Charlene (*left*) is in charge of bedding for the folding cots and fold-up bunks. Son Claude looks after the candles, flashlights, transistor radio and a fresh supply of batteries. Daughter Judy is the shelter librarian with a stock of books and games to help pass the time. The shelves also contain paper napkins, cups and plates, toilet tissue, cooking utensils, and changes of clothing for everyone. The inside walls of the shelter are painted bright colors to add a note of cheerfulness and increase illumination.

1
2

Revell

Authentic Kit

U. S. ARMY

NIKE HERCULES

GUIDED MISSILE

GROUND-TO-AIR MISSILE

- SNAP-FIT MOVING PARTS
- SEPARATE BOOSTER STAGE
- 3 LAUNCHING CREW FIGURES
- MOLDED IN 3 COLORS

POPULAR MECHANICS MAGAZINE

See Page 100

The Owners Report on the
'51 CHRYSLER

You Build Your Next Home at MOLASSES'

Popular Mechanics Sponsors
HORSELESS CARRIAGE RACE

DEPARTMENT OF DEFENSE

OFFICE OF CIVIL DEFENSE

PERSONAL and FAMILY SURVIVAL

CIVIL DEFENSE ADULT EDUCATION COURSE STUDENT MANUAL

SM 3-11 (REVISED)
MAY 1961

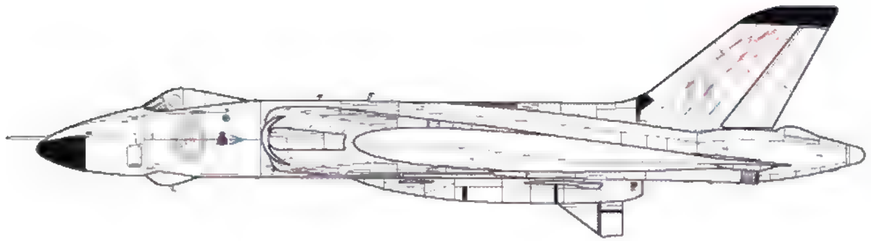
8.

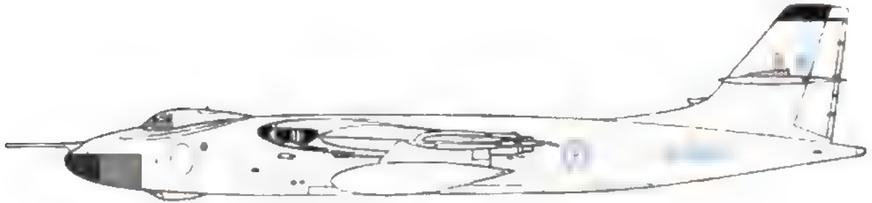
THIS AMERICAN CITIZEN IS:

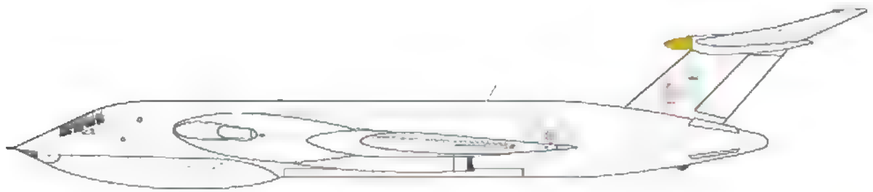
- ☐ Watching Horses
- ☐ Bird Watching
- ☐ Watching Girls
- ☐ In Ground Observer Corps
- ☐ Watching moon

J.P. Miller

65
NAVY
LOCKHEED
XFV-1
LOCKHEED







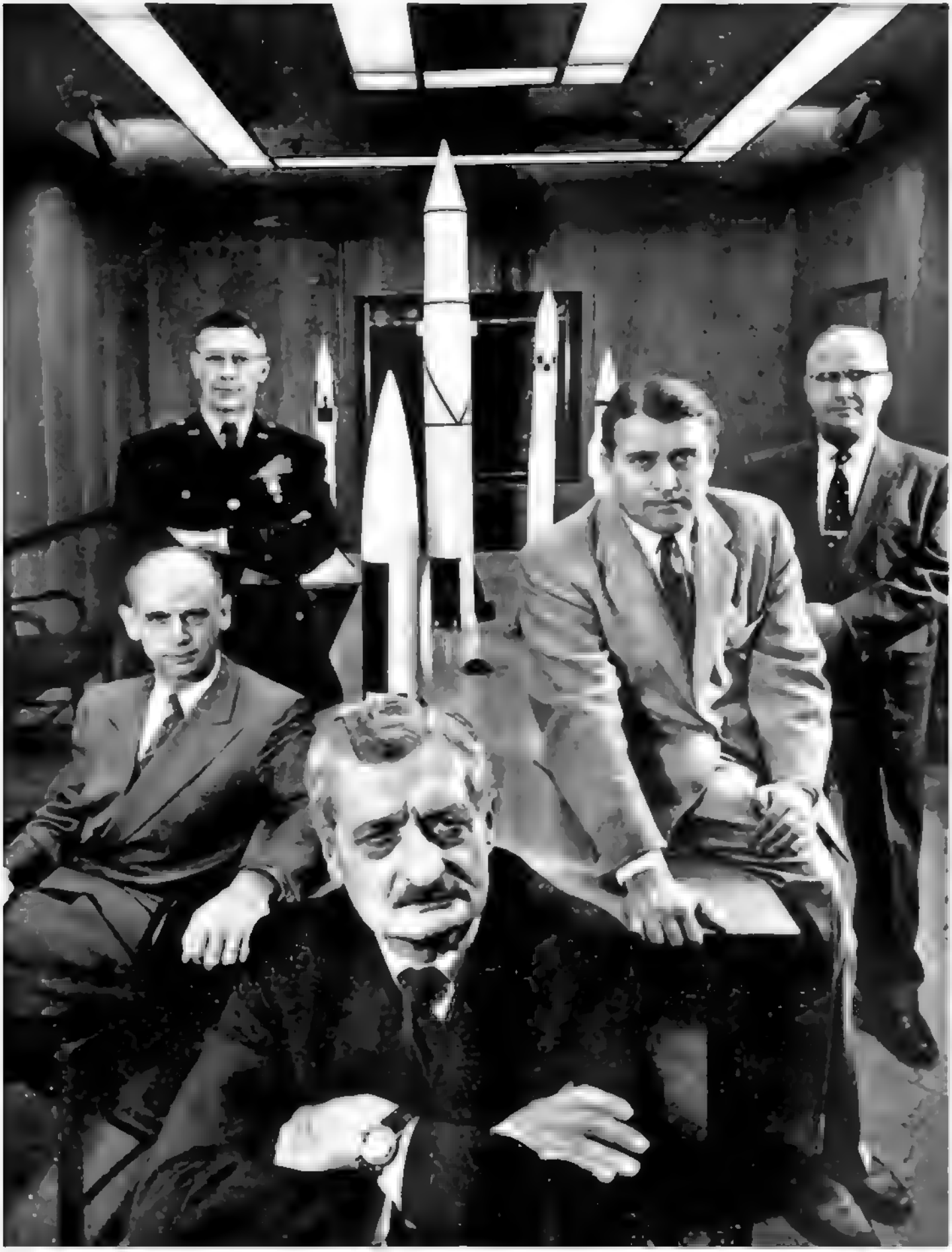
The United Kingdom Warning and Monitoring Organisation

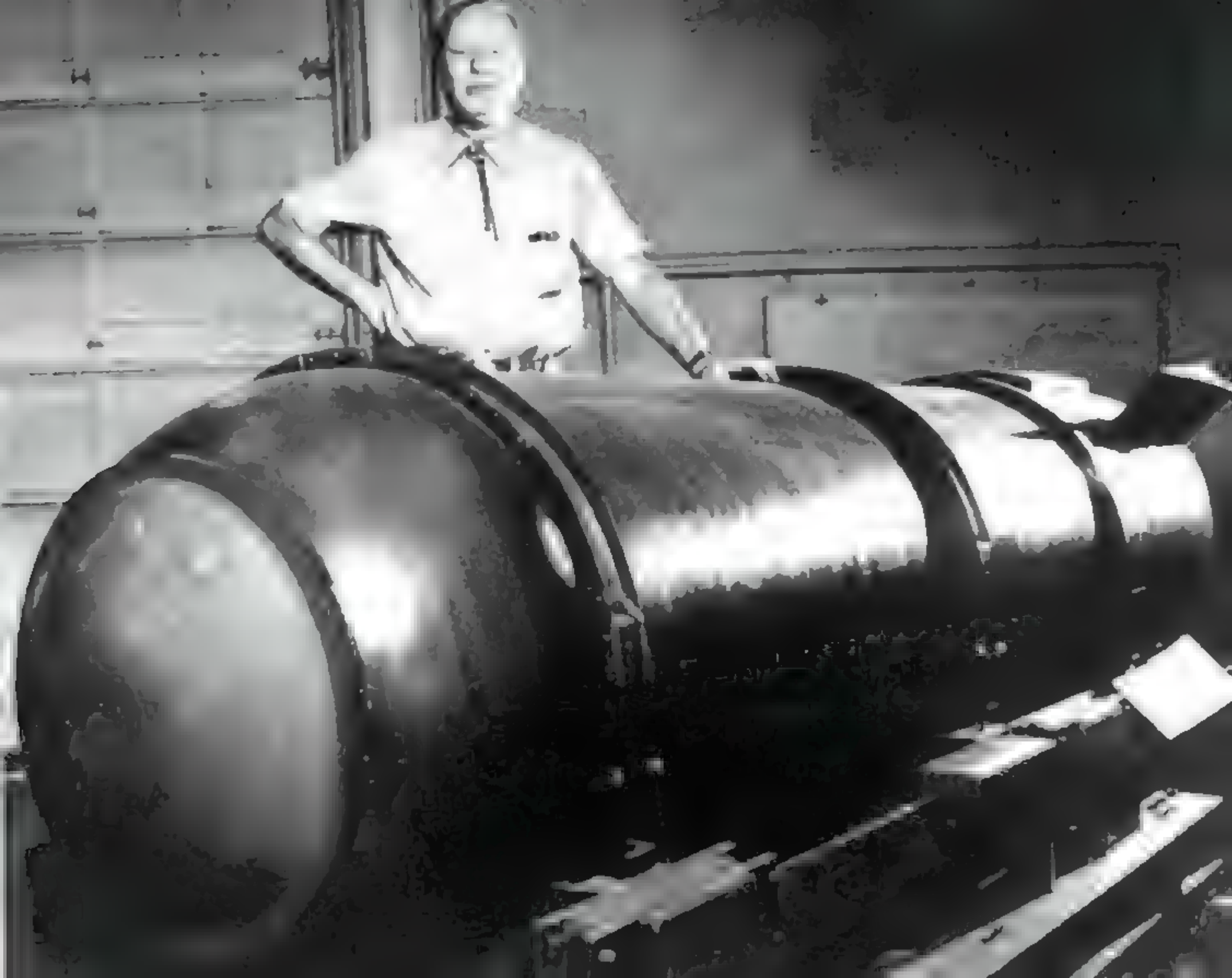
SOUND AN ALARM !

1962

Sound an Alarm!
RAF
The United Kingdom Warning and Monitoring Organisation
1971

The United Kingdom Warning and Monitoring Organisation
SOUND AN ALARM !
80°
50
40
30
1971





Revell

Authentic Kit

CALLED FROM OFFICIAL BLUEPRINTS

U. S. A. F.

LOCKHEED

X-17

RE-ENTRY RESEARCH MISSILE

★ 3 STAGES

★ SNAPS APART

★ 3 FIGURES

★ MOVABLE SCOPE

NORTHROP **SNARK** SM-62

INTERCONTINENTAL GUIDED MISSILE

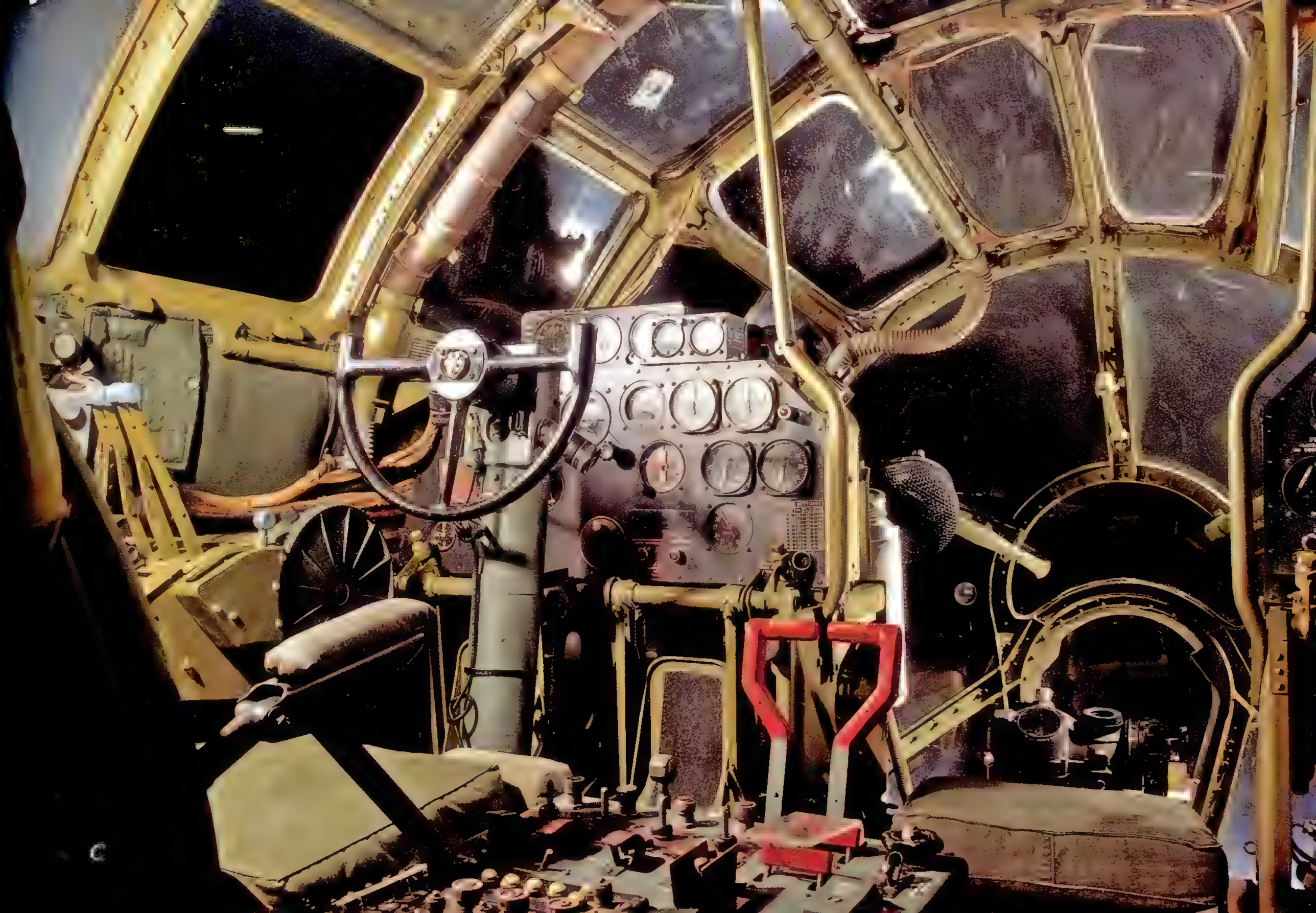
COMPRESSION MOLDED PLASTIC

EASY TO BUILD • READY TO PAINT

SQUADRON OFFICIAL BLUEPRINTS

Revell

Authentic Kit



77

FLOWN TO FRONT-LINE POSITIONS BY SIKORSKY FLYING TRUCKS AN ARMY COMBAT UNIT UNLOADS SUPPLIES AND GOES INTO ACTION

YOUR ARMY IS TACKLING A LONG, HARD JOB—

DEVELOPING SPECIALIZED AVIATION TO SUPPORT GROUND COMBAT

Since the early days of aviation, the U. S. Army has realized that one day, aircraft would move its men and materials faster and more easily *within combat zones* than any means ever employed.

For years the Army has made use of fixed-wing aircraft for artillery spotting, but new developments and other duties which were distinct from those of the Air Force. But the initial need was always there—for a flying truck—a versatile vehicle that could move freely over impassable terrain and could be under the immediate direction of combat commanders.

The answer came with the development of big helicopters able to carry substantial loads.

The advantages are overwhelming. With helicopters, for instance, a rifle company needs no roads . . . fewer supply points . . . can ignore difficult terrain . . . and can accomplish vertical envelopment. Its wounded can be swiftly evacuated, its communications rapid, and it can cover much more ground than a motorized unit.

With both helicopters and fixed-wing aircraft, Army Aviation will be better than ever prepared to perform its vital mission of supporting ground combat.

But building Army Aviation is a long, hard job. Long-range plans call for doubling the 1,800 aircraft, 1,800 pilots, and about 2,400 maintenance men of today's Army. New and better types of aircraft must be developed by the industry working in close cooperation with the Army. Possibilities of new ground tactics must be continually investigated. Add all this and you can see what a vast and complicated job the Army is tackling in employing and developing this one phase of Air Power.

To succeed, the Army must have public understanding of the time needed to expand Air Power . . . and a recognition of the fact that Air Power must be consistently maintained in peace if it is to be relied upon to help prevent—or meet—the terrible emergencies of war.

JonWilliamson.com

But for Him...

But for him . . . words would be sterile, meaningless things . . . words like freedom, liberty, justice, equality . . . words that make pacts, proclamations, constitutions, charters . . . hopes for a better, more peaceful future.

Back of each man with a gun there are at least 25 men in uniform. They are men who are doers in their own right . . . specialists in communications, transportation, engineering, food, housing, motors, maintenance, repairs, electronics and many others.

Today's Army is a multiple combination of teams . . . in which all individuals merge their identity for a cause. Yet, as on any team in civilian life, individuals emerge from the group to carry the team and the cause.

Your Army is constantly seeking individuals of courage and initiative. Last year more than 200,000 men volunteered for the role of HIM. If you believe you can qualify, stop in at your nearest U. S. Army and U. S. Air Force Recruiting Station and see how much your Army offers.

U. S. ARMY

RECRUITING
U.S. ARMY
U.S. AIR FORCE

Only the best can be Aviation Cadets

This young man could be you. He is part of a whole new exciting world. The highway of the sky is his highway to success. The roar of the engine is sweet music to his ears. Confidently he climbs into a jet fighter or mighty bomber. Confident because he has the finest aviation training in the world. He has earned the right to wear a pair of silver wings.

This young man *can* be you if you qualify. For information, visit your nearest Air Force Base or Recruiting Station.

WIN YOUR WINGS

U.S. AIR FORCE

For men with two years of college (or can pass an equivalent examination) Between ages of 20 and 26½. Single, male citizen. High physical and moral qualifications.

U. S. ARMY AND U. S. AIR FORCE RECRUITING SERVICE

museum.com

be a PARTNER in DEFENSE

OLIVET AMERICA

American Toys *for American Boys and Girls*

YES, nothing thrills a child as much as the *right* toy, and that means an American toy. For only American toys are built with the American child—and nobody else—in mind.

Only American toys are child-tested by American

American toys are safe as well . . . the safest in the world. For American Toy Institute safety standards are based on years of scientific research in materials, construction, coloring.

So when you buy toys for Christmas or any time,

TRUE WAR STORIES

10

ATTACK!

JULY No. 8 10¢

WHEN THE U.S. MARINES WANT YOU, YOU GOOK, WE COME AND GET YOU- RIGHT IN YOUR OWN H.Q.!

READ:

GLORY BAIT

RESCUE AT PUENGYAN

LADIES DO FIGHT!

PLUS OTHER GREAT FEATURES

LIFE

LIFE

LIFE

ENGINE PANEL

USDOE

Have a Pepsi, merry people!

EVEN IN THIS SEASON of tradition, you'll notice some new trends—
in the way that people look and feel.

Lighter, less-filling food and drink help today's moderns celebrate merrily—but stay slim. That's why today's Pepsi-Cola, reduced in calories, is especially welcome at today's festive occasions. Never heavy, never too sweet, it refreshes without filling.
Have plenty of Pepsi on hand for the holidays!

PEPSI-COLA

The Light refreshment

BANTAM BOOK

COMPLETE EASY-TO-READ GUIDE FOR EVERY HOME, OFFICE and FACTORY

If there's ATOMIC WARFARE this book may save your life!

How to Survive an Atomic Bomb

RICHARD GERSTELL

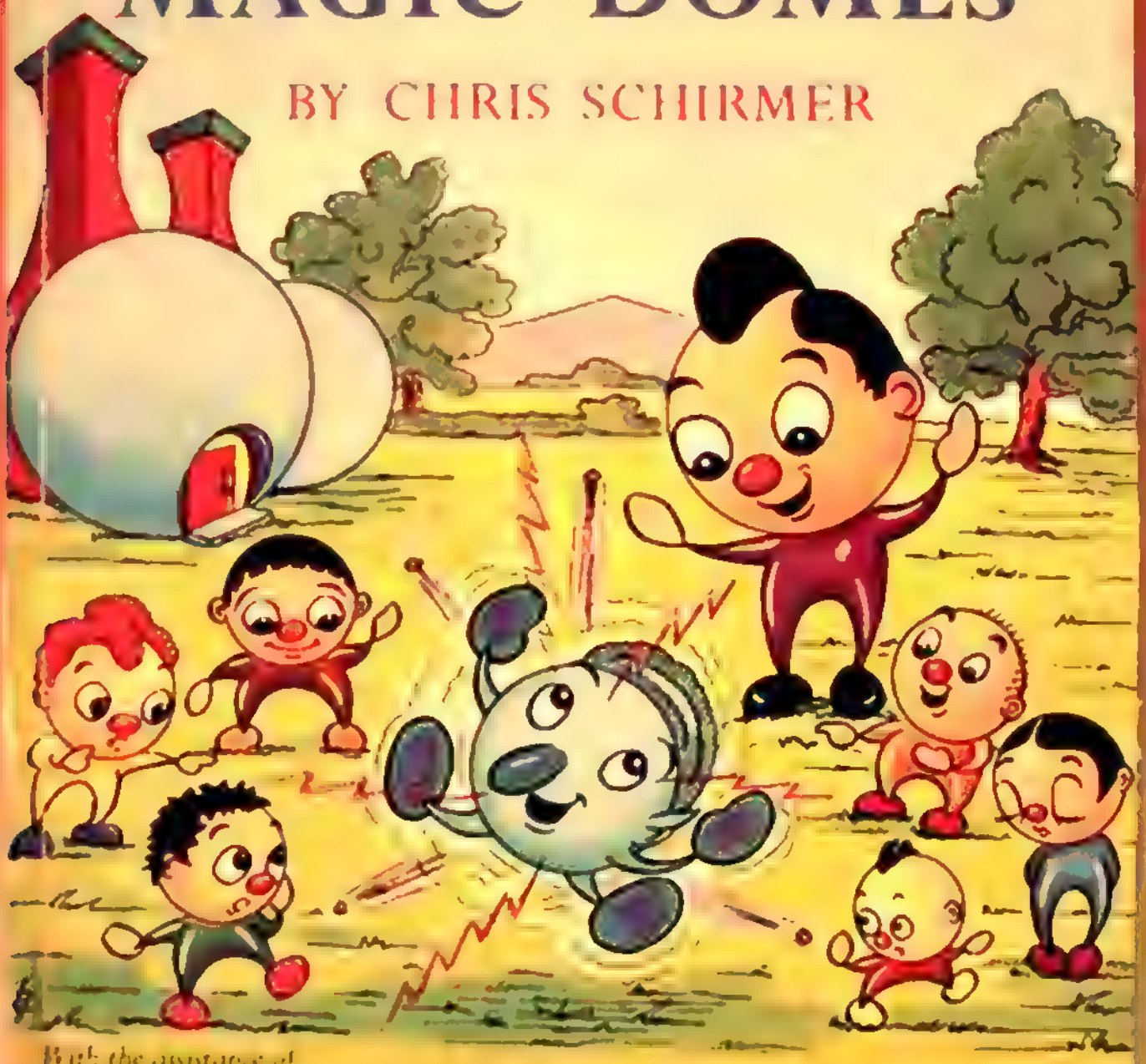
CONSULTANT, *Civil Defense Office*

TOM ATOM

AND HIS

MAGIC DOMES

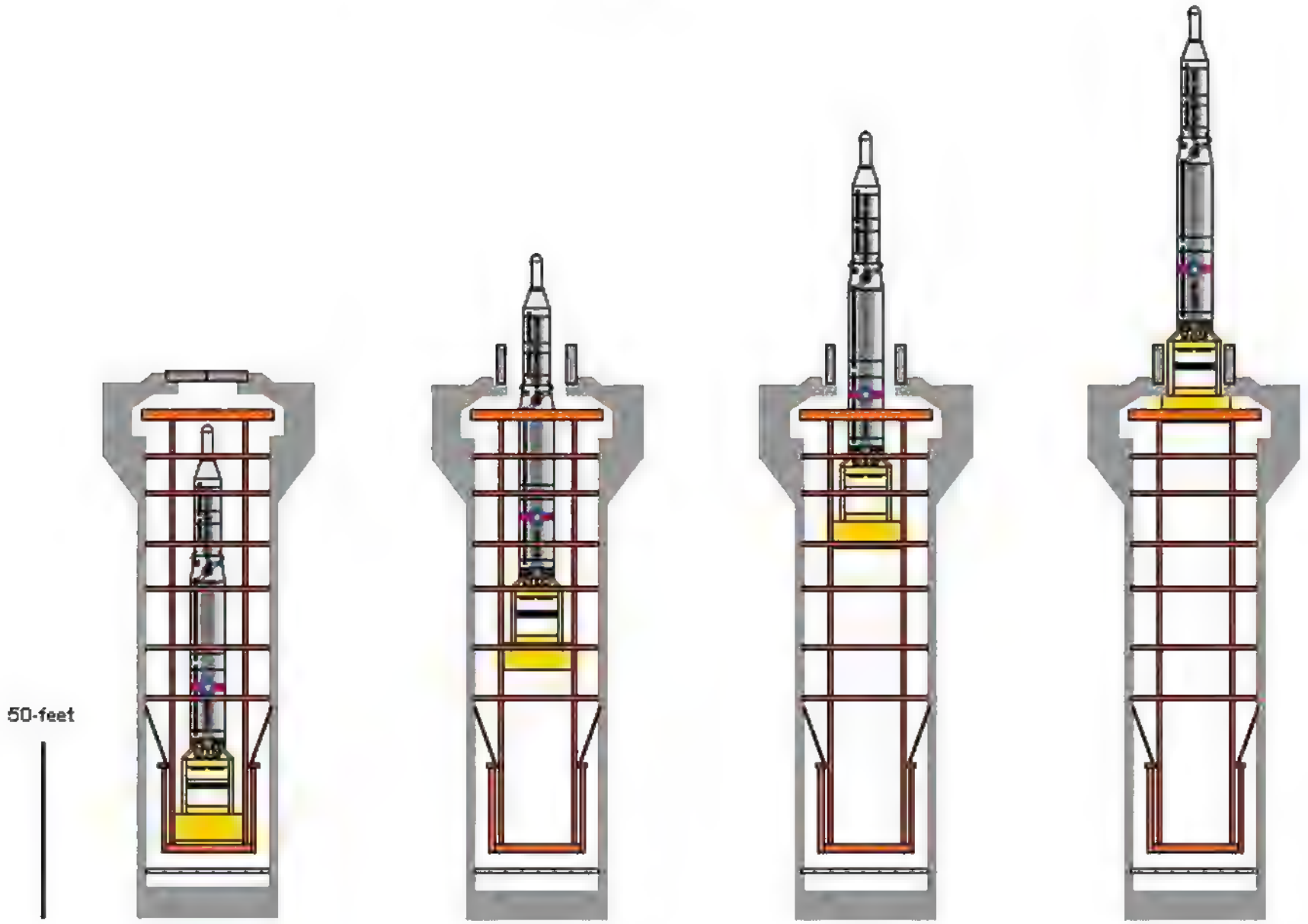
BY CHRIS SCHIRMER



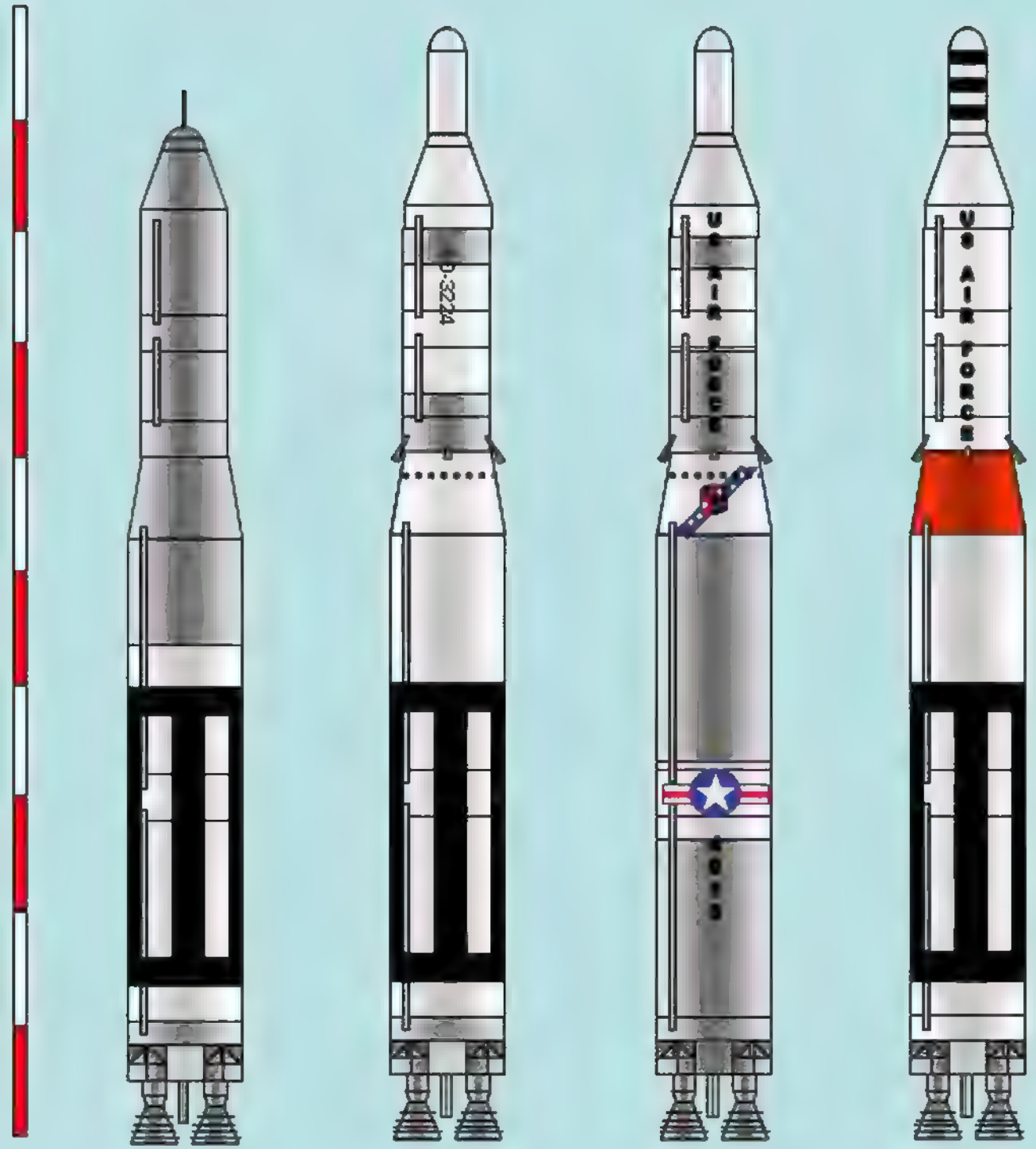
With the assistance of

THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY

Elevator Lifting Titan 1 From Silo



Titan 1 Markings



LOT A

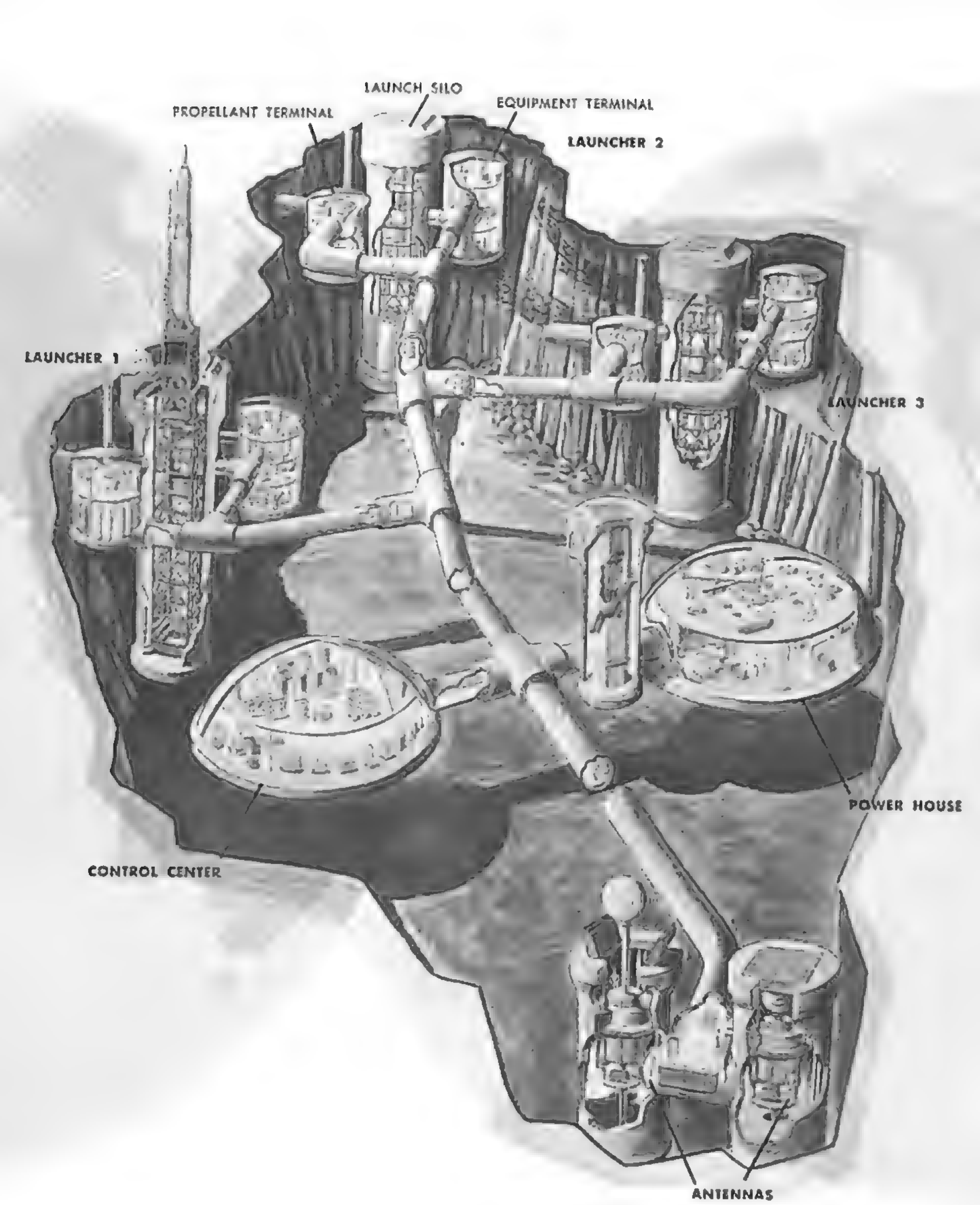
Test Missile
1959

LOT J

Test Missile
1961

SAC
Operational
Missile - 1962

Pattern of many
Display Missiles


LAUNCH SILO
PROPELLANT TERMINAL
EQUIPMENT TERMINAL
LAUNCHER 2
LAUNCHER 1
LAUNCHER 3
POWER HOUSE
CONTROL CENTER
ANTENNAS

2335
U.S. AIR FORCE
U.S. AIR FORCE

CLEARANCE 10FT 5IN

Tonopah
95
Goldfield
Lida
Scotty's Junction
Sarcobatus Flat
267
95
Tonopah Test Range
Cactus Flat
National Wildhorse Management Area
Nellis Air Force Range
375
Rachel
Tikaboo Valley
Hiko
318
93
375
Crysta Springs
Ash Springs
Tikaboo Peak
Alamo
93
51
Groom Lake
Pahute Mesa
Nevada Test Site
Yucca Flat
Yucca Mountain
Yucca Lake
Jackass Flats
Frenchman Flat
Nellis Air Force Range
Desert National Wildlife Range
Beatty
Death Valley
374
Amargosa Desert
95
Desert Rock
Mercury
Indian Springs Air Force Auxiliary Field
Amargosa Valley
Indian Springs
Furnace Creek
Panamint Springs
Death Valley Junction
Pahrump
95
15
Nellis AFB
Las Vegas

Power for Peace. *For the United States Navy* the world's first atomic-powered submarine, USS Nautilus • the world's second atomic-powered submarine, USS Seawolf • the world's third, fourth and fifth atomic-powered submarines, "Skate", "Skipjack" and "Triton" • and the guided missile "Terrier" *For the United States Air Force* the B-52 intercontinental bomber • the B-58 supersonic bomber • the F-102A delta-wing supersonic interceptor • the world's first power-reactor • the world's first atomic-powered aircraft • and "Atlas" the intercontinental ballistic missile

STEP BY STEP

Communism tramples across nations.

Millions are enslaved by it—millions more tremble in the advancing red shadow.

America stands as the great bulwark against this Communist threat.
Here we can still speak, work and live without fear.

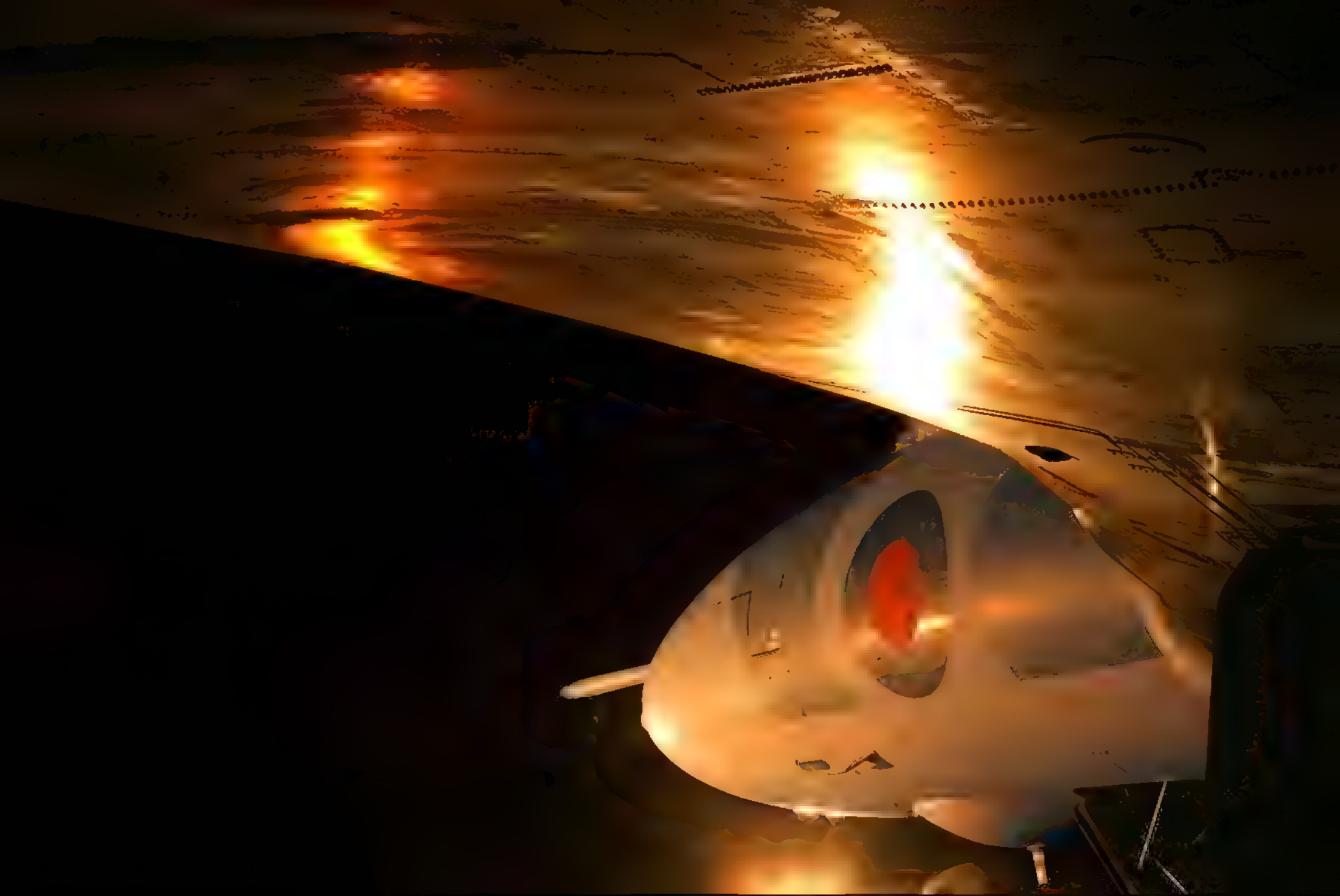
The first terrible STEP toward national suicide is taking our freedom for granted.

BOHN ALUMINUM & BRASS CORPORATION
GENERAL OFFICES LAFAYETTE BLDG. • DETROIT 26, MICHIGAN

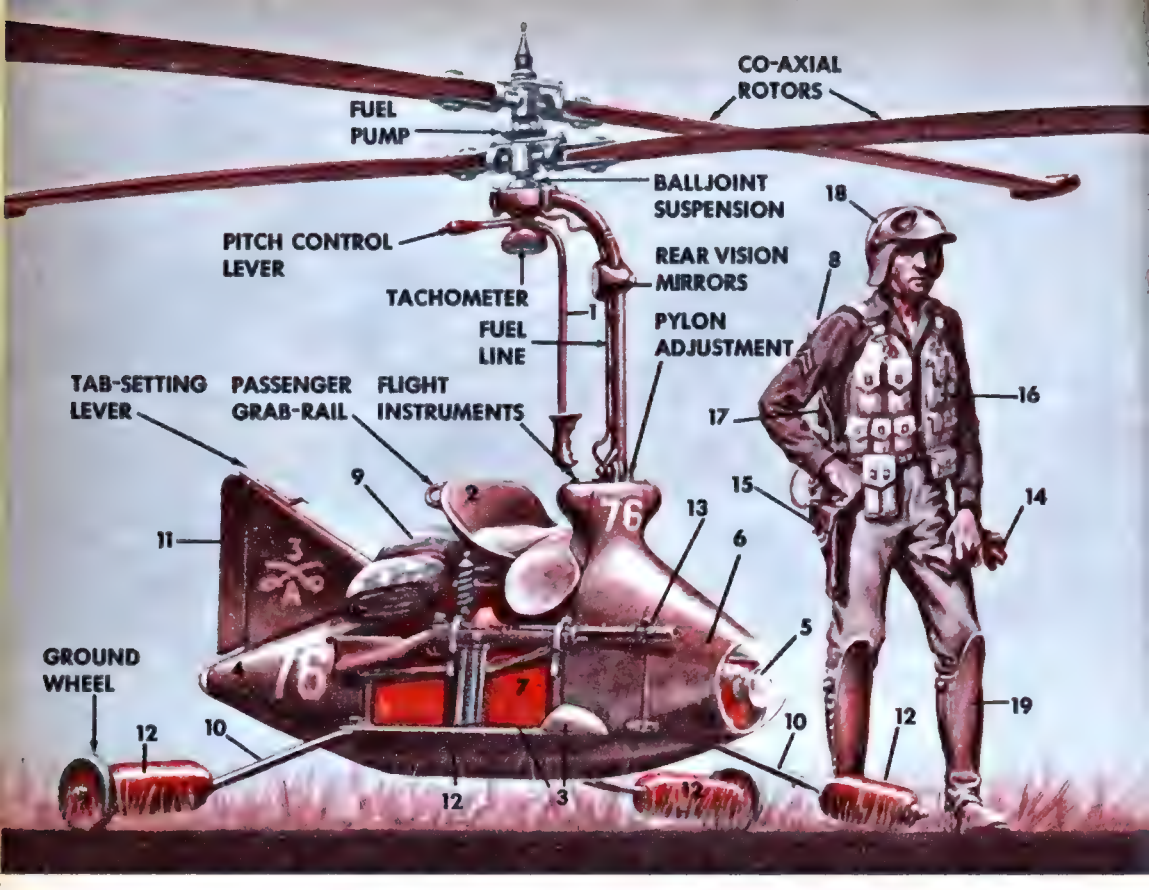
BEARINGS • EXTRUSIONS • CASTINGS • FORGINGS • PISTONS
INGOTS • AUTOMOTIVE REPLACEMENT PARTS • AIRCRAFT PARTS

TELEVISION!
"American Forum of the Air" Every Sunday Evening on NBC Television
Consult Your Newspaper for Time and Station

BOHN



U.S. AIR FORCE



A comparison of equipment carried by the helicopter trooper and the horse cavalryman.

HELITROOPER	HORSE TROOPER
1. Control stick.	1. Bridle and reins.
2. Motorcycle/stock saddle combination.	2. McClellan saddle.
3. Runningboard and toe-caps.	3. Hooded stirrups.
4. Tilting tail cone: ammo, rations, etc.	4. Saddle bags: ammo rations, etc.
5. Tilting nose cone: landing lights.	5. (No equivalent).
6. Tie-down ropes, tent pins in nose cone.	6. Halter shank, lariet, picket pin.
7. Fuel tank.	7. Pommel roll (feedbag).
8. Slicker on combat pack.	8. Slicker above feedbag.
9. Cantle roll: camouflaged copter cover.	9. Cantle roll: tent, blankets, etc.
10. Three spring landing legs.	10. Legs.
11. Directional tail fin and trim tab.	11. Tail.
12. Leg floats for water.	12. Horse can swim stream, tow rider.
13. T-47 auto rifle.	13. '03 rifle in leather boot.
14. Combination sword/tool on belt.	14. Sabre, right side pommel.
15. Pistol in belt holster.	15. Pistol in belt holster.
16. Ammo pockets/armored breastplate.	16. Ammo belt and suspenders.
17. Combat pack on armored backplate.	17. (No equivalent).
18. Visored helmet with goggles.	18. Campaign hat.
19. Zippered, armored jackboots.	19. High laced boots and spurs.

Let's Use Helicopter Cavalry

Swooping in suddenly, helitroopers on powerful "sky horses" could wreak havoc with enemy troops.

By Frank Tinsley

SCATTERED along the western slope of the Asiatic coastal range, the copter troopers and their mounts cluster in little groups as the rising sun climbs behind them. The jump-off moment is fast approaching. Within minutes, the sun will burst blindingly above them to cover their westward assault.

The first elements of the blitz landing—submarine-borne marines—had hit the enemy coast only three days ago, seized the controlling crests and passes of the coastal hills in bloody fighting, well covered by massive flights of water-borne jet fighters.

When Should You 'Fight' a Speeding Ticket? Page 61

POPULAR MECHANICS

SEPT. 1969
50 CENTS

New Tougher-to-Pick Door Locks Page 134

ABCs of Chassis and Suspension Systems

Better Sound From Your TV Page 148

New Fly-It-Home Ejection Seat

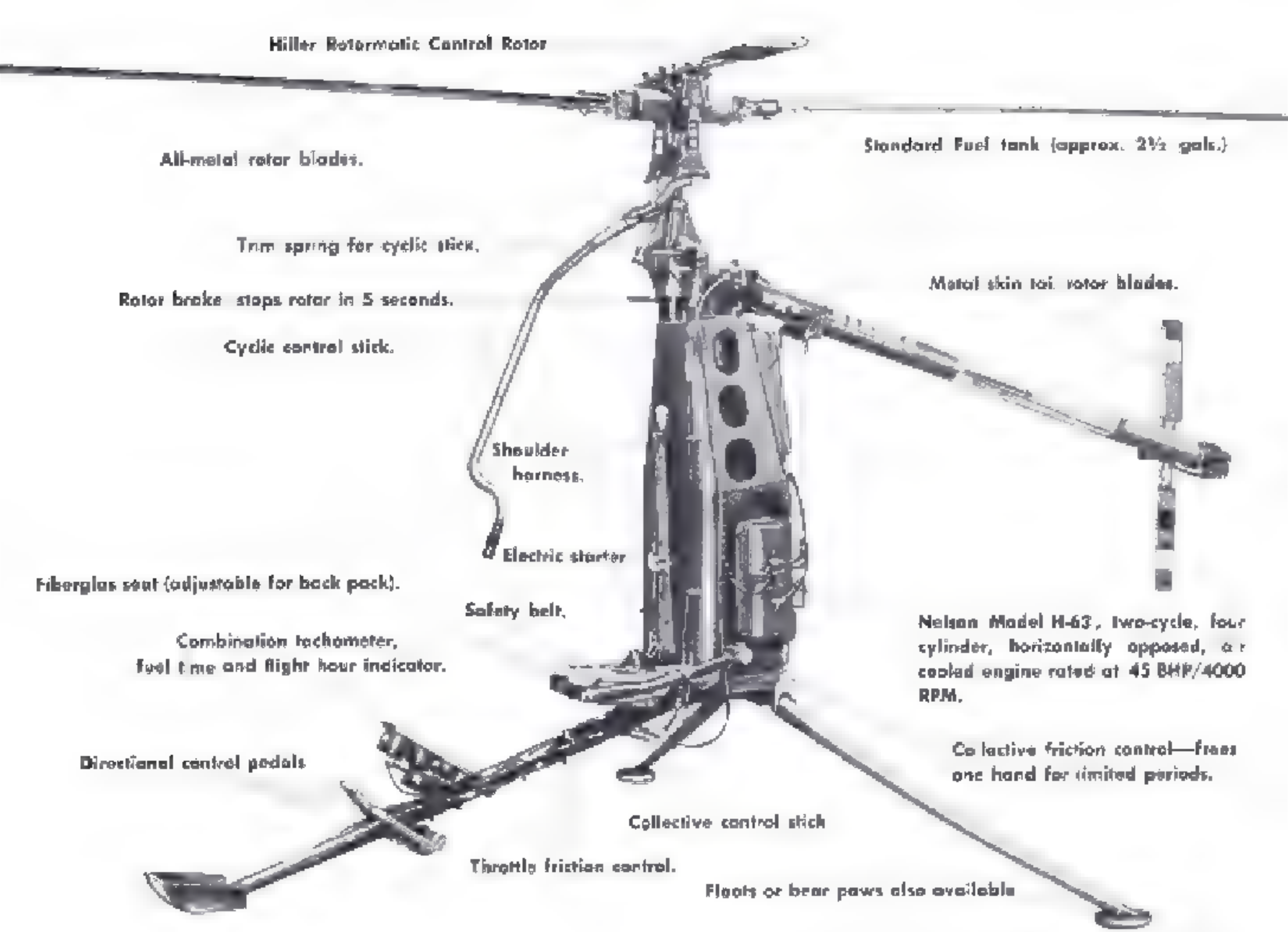
IDEAS FOR YOUR HOME: Prepainted Aluminum Fencing

Come-With-Color Shutters

A Work Center for Your Garden

Installing Gutters and Downspouts

Buying a Good Old House • Laying a Brick Driveway


Hiller Rotormatic Control Rotor
All-metal rotor blades.
Trim spring for cyclic stick.
Rotor brake stops rotor in 5 seconds.
Cyclic control stick.
Shoulder harness.
Electric starter
Fiberglas seat (adjustable for back pack).
Safety belt.
Combination tachometer, fuel time and flight hour indicator.
Directional control pedals
Throttle friction control.
Collective control stick
Floats or bear paws also available
Standard Fuel tank (approx. 2½ gals.)
Metal skin tail rotor blades.
Nelson Model H-63, two-cycle, four cylinder, horizontally opposed, air cooled engine rated at 45 BHP/4000 RPM.
Collective friction control—frees one hand for limited periods.

LIFE

BOLD PROPOSAL FOR PEACE

A NEW KIND OF GREAT WHITE FLEET

NOW 19¢

HOW U.S. SHIPS WOULD
SAIL ON MERCY MISSION

JULY 27, 1959 19 CENTS

10¢

THE RED ICEBERG

© 1960 Impact Publications

Red Channels

The Report of

COMMUNIST INFLUENCE IN RADIO AND TELEVISION

Published By

COUNTERATTACK

THE NEWSLETTER OF FACTS TO COMBAT COMMUNISM

55 West 42 Street, New York 18, N. Y.

$1.00 per copy

For a [illegible] reprint of this Ad, write Avco, Dept. UN2, 750 Third Avenue, New York 17, N.Y.

Centuries of history teach the importance of military mobility. And today Avco capabilities help provide it. Superstrong honeycomb structures for logistics aircraft—reliable engines for battlefield helicopters, aircraft, and drones—high-speed amphibious hydrofoil vehicles—advanced ordnance—push-button combat communications. These are important Avco contributions to today's vital mobility for defense.

UNUSUAL CAREER OPPORTUNITIES FOR QUALIFIED SCIENTISTS AND ENGINEERS REGARDLESS OF RACE, CREED, COLOR OR NATIONAL ORIGIN. WRITE AVCO TODAY. **AVCO CORPORATION, 750 THIRD AVE., NEW YORK 17, N.Y.**

Avco

In any future national emergency, the principal burden of transportation will fall upon the railroads (In World War II, 90% of all military freight moved by rail).

In everyone's interest, public policy should give the railroads the opportunity to compete with other forms of transportation on a fair and equal basis.
ASSOCIATION OF AMERICAN RAILROADS WASHINGTON, D. C.

ON AMERICA'S AIR FLEET

Foote Bros. Power Units and Actuators

Freedom Has a New Sound!

ALL OVER AMERICA these days the blast of supersonic flight is shattering the old familiar sounds of city and countryside.

At U S Air Force bases strategically located near key cities our Airmen maintain their *round the clock* vigil ready to take off on a moment's notice in jet aircraft like Convair's F-102A all-weather interceptor. Every flight has only one purpose: your personal protection.

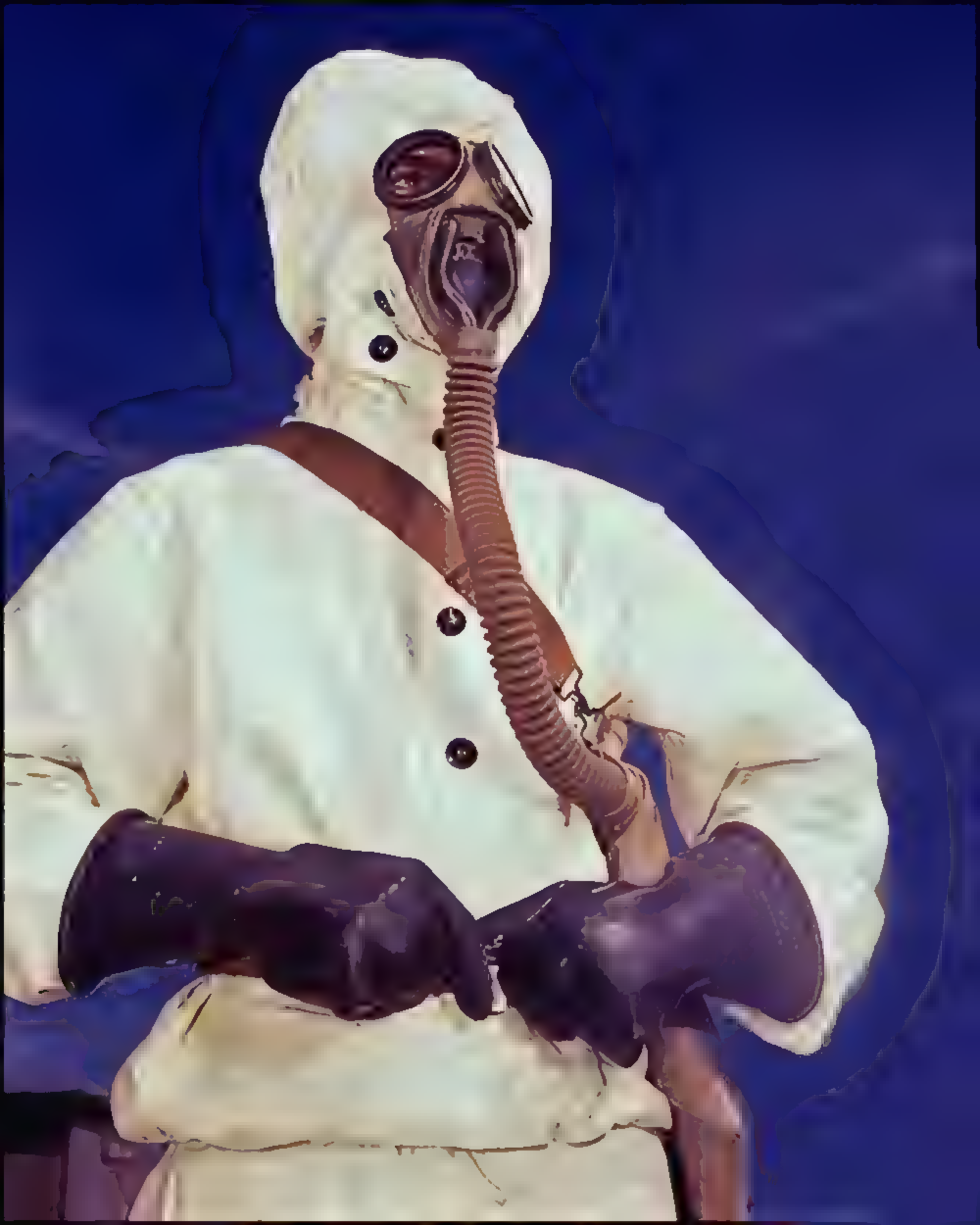
The next time jets thunder overhead, remember that the pilots who fly them are not warlike disturbers of your peace; they are patriotic young Americans affirming *our New Sound of Freedom!*

PUBLISHED FOR BETTER UNDERSTANDING OF THE U.S. AIR FORCE BY THE AIR FORCE ASSOCIATION, WASHINGTON, D.C.

CONVAIR

A DIVISION OF GENERAL DYNAMICS CORPORATION

Concorde



LIFE

To guard the peace of these sun-swept hills

THAT is the role of the red-blooded men who serve in the National Guard. It's an historic role—the most significant in this proud organization's long and illustrious history.

The new National Guard's 27 divisions and 27 air groups, superbly equipped and highly trained, will be America's M-Day force of citizen soldiers. Standing shoulder to shoulder with the Regular Army, they will be a stabilizing influence in a restless world.

Famous regiments, with unit histories older than the nation itself, are reorganizing daily under National Guard banners to resume their peacetime mission. Young men from every walk of life are joining up, men who measure up to high physical and mental standards.

These men will be the leaders of business and industry in the days and years to come. For service in the new National Guard teaches them the principles of leadership and gives them a chance to learn valuable skills that will serve them well in civilian life.

The National Guard needs many virile, alert young men to help it guard the peace. It offers a full day's pay at new high Regular Army rates for one night each week of Armory training and for each day of summer field exercises.

★ *Listen to the "National Guard Assembly," with Paul Whiteman, Wednesdays, 8:30 P. M., EDST, ABC Network.*

• • •

Many employers recognize that National Guard training helps make better employees. They further the National Guard's mission by granting their Guardsmen-employees time off for summer field training without sacrifice of income or vacation period. "Your National Guard helps guard the peace."

For full information about the new National Guard, contact the officers of your local unit, or write the Adjutant General in the capital city of your state.

The National Guard

☆ ☆ ☆ OF THE UNITED STATES ☆ ☆

©JonWilliamson.com

THE MOST AMAZING PLOT IN 3300 YEARS OF RECORDED ESPIONAGE!

DANA ANDREWS

GENE TIERNEY

in

THE IRON CURTAIN

with JUNE HAVOC · BERRY KROEGER · EDNA BEST

STEFAN SCHNABEL · NICHOLAS JOY · EDUARD FRANZ · FREDERIC TOZERE

Directed by WILLIAM A. WELLMAN · Produced by SOL C. SIEGEL

20th CENTURY-FOX

LAFAYETTE RADIO

AMERICA'S ELECTRONICS HEADQUARTERS

NOW! Give Your Family The Protection They Need

FAMILY RADIATION SURVIVAL SET

Measures Radiation Fallout — Tells You When It's Safe to Leave Shelter

- Certified by Bendix to Meet or Exceed Office of Civil Defense Mobilization Specifications
- Simple to Use—Direct Reading
- Rugged and Reliable
- Pocket-Size Portable
- Kit Includes Ratemeter, Dosimeter, Charger and Instruction Manual

TE-666

24.95

No Money Down

The Federal Government recommends that each family has a radiation kit. SEND FOR YOURS TODAY.

LAFAYETTE 9-TRANSISTOR PORTABLE "WALKIE TALKIE"

HE-29A **39.95**

2-for-78.88

- Transmits and Receives up to 15 Miles
- Battery Operated — No Outside Power Source Required
- Up to 20 Hours Battery Life
- Complete with Batteries, Earphone, Antenna, Crystals for Channel 18, Leather Carrying Case

LAFAYETTE "MIGHTY-9"

— the Most Powerful 9-Transistor Portable Radio

- Combined Markings for Civil Defense Use
- 9 Transistors, 2 Diodes, 1 Thermistor
- Lightweight, Shirt-Pocket Size
- Complete with Batteries, Earphone, Carrying Case

RS-91

25.88

NO MONEY DOWN

FREE!

340-Page 1962 LAFAYETTE Electronics Catalog

Lafayette Radio, Dept. NW
P.O. Box 10, Syosset, L. I., N. Y.

[ ] Send me FREE 1962 Lafayette Catalog 620

[ ] $ _____ enclosed. Send me Stock No. _____

Name _____

Address _____

City _____ Zone _____ State _____

Flying in the missile age

THE NEED FOR PILOTS, navigators and air electronics officers is as urgent as ever . . . and the career prospects no less promising. Weapons change, tactics change, but the role of the Royal Air Force today remains the same.

"I should like to say a word about the future of the Royal Air Force . . . The introduction of new weapons will be a gradual process, extending over a good number of years, and even then there will still remain a very wide variety of roles for which manned aircraft will continue to be needed. I therefore hope that young men who have the ambition to be pilots, as well as those who are interested in new technical advances, will continue as before to look to the R.A.F. for a fine and useful career."

MINISTER OF DEFENCE, APRIL 16TH 1957

More opportunities — not less. Manned aircraft will *always* be needed for those functions to which the human brain in the air is indispensable. And, whatever new instruments of air power are evolved, the R.A.F. will always need men of initiative who have been trained to master the problems of the air, in the air. These men can not only fulfil their ambition to fly for as long as they serve, but will have a full and satisfying career.

A sure future — good pay. You can join the R.A.F. through the Direct Commission Scheme, confident of a permanent career right up to pension age. Or you can choose a twelve-year engagement with the option of leaving after eight. If you leave after 12 years you take back to civilian life a tax-free gratuity of £4,000.* Alternatively, there is a five-year Short Service Commission Scheme and for University Graduates, a special four-year Short Service Commission. Whichever you choose, the pay is good. At the new rates a Flight Lieutenant of 25 for instance, can draw, with full allowances, about £1,500 a year.

The advent of the stand-off bomb (air to ground missile, for despatch several hundred miles from a target) actually enhances the vital role of the Valiant and other V-bombers for many years to come.

How to fly with the R.A.F. You must be between 17½ and 25 and absolutely fit. You must have General Certificate of Education or Scottish Leaving Certificate or their equivalents. You must be able to lead others, and you must have aptitude as well as enthusiasm for flying. If you feel you have all these qualities, write at once for details of the schemes of entry and an informative booklet, to the Air Ministry (GR1), Adastral House, London, W.C.1. Give date of birth and educational qualifications.

The Royal Air Force

Flying . . . and a career

301
ROYAL NAVY
VL

ROYAL AIR FORCE TRANSPORT COMMAND

Photo Copyright © Denis Roschiau

AVIODOME

FIRST GRADE TO COLLEGE! Many thousands of service men and women now study everything from English to differential calculus under educational-development program of U.S. Army and U.S. Air Force. All after-hours work supplements regular service schooling.

Spare-Time Education for the Soldier and Airman:

It places High School and College at their Finger Tips!

Around the world, off-duty educational programs of U. S. Army and U. S. Air Force make a science of correspondence courses and after-hours study groups—give servicemen broader academic basis for advancement within military specialties. Even on off-post schooling, the Army or Air Force pays a large part of costs.

EXAM TIME! Under career-guidance plans, promotions are tied in with job skill plus written exams. *Information and Education Branches* provide supplementary textbooks to help men win promotions.

TAKE TEN! A ten-minute breather is enjoyed by this group of airmen who are taking a downtown business-school course in mathematics. They're boning up for the Aviation Cadet entrance examinations.

OUTDOOR CLASSROOM. Soldiers in Japan earn high school credits in fundamental geology class conducted by a non-com. United States Armed Forces Institute (USAFI) provides texts and lessons

HIGHER EDUCATION. Soldiers in Germany study language at an Army post education center. USAFI can't give college credits but, under system of American Council of Education, men may apply for them

OCS-BOUND! This soldier, helped by I&E Officer, is taking USAFI course as a step toward Officer Candidate School. Self-study and correspondence courses are complete, easy to follow.

CAREER OPPORTUNITIES now greater than ever. Training is better, chances for advancement greater.

Visit your nearest recruiting station for full details.

The team comes out of its huddle and here's the play. Tankmen such as those of the "Hell-on-Wheels" 2nd Armored Division at Camp Hood soon realize the value of teamwork and split-second timing in all phases of Army life.

RECRUITING
U.S. ARMY
U.S. AIR FORCE

Operation Peace

November 1949

A quick look at life in today's streamlined Army Divisions. Meet the skilled technicians and soldiers who make an important career out of professional service to their country.

Takes a keen eye and quick reflexes to hunt wild boar! These Regulars in the top-notch 1st Infantry Division in Germany enjoy this thrilling sport, because their training and physical conditioning keep them in A-1 shape.

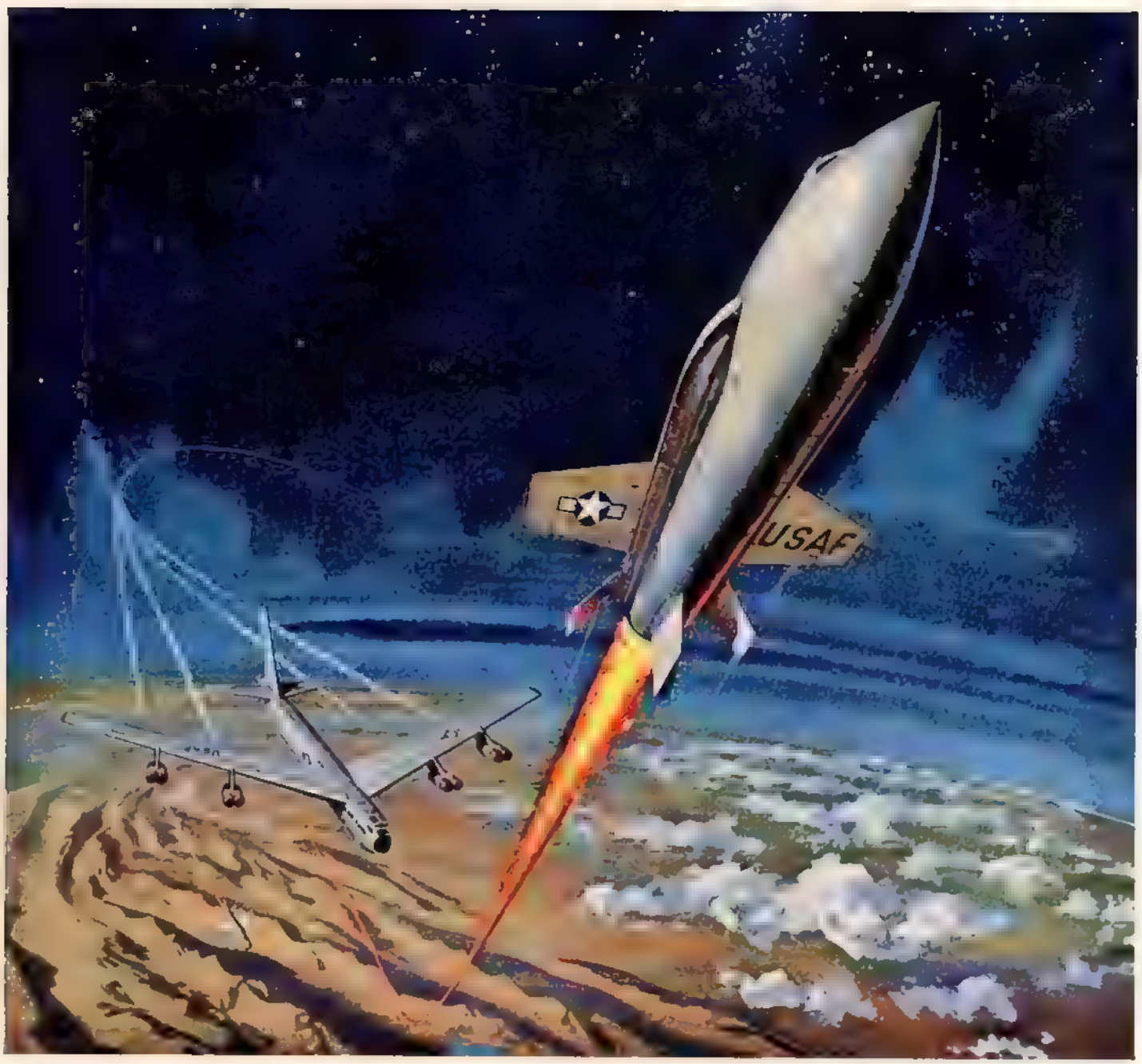
Great opportunities to develop executive and managerial ability make an Army NCO's career worth while. Here, at Fort Jackson, home of the famous 5th Infantry Division, Regular Army men become skilled in planning and leadership.

Lessons in sportsmanship come naturally from our soldiers—help unofficially in the Army's task of bringing democracy to occupied lands. This soldier of the 24th Infantry Division in Japan takes pride in his after-hours role.

Complex equipment means our modern divisions must have specialists—in communications, fire-power, many other fields. Here at Ft. Dix, home of the 9th Infantry Division, telephone fieldmen study a complicated switchboard.

Leadership, initiative, quick thinking are recognized and rewarded in the Army. The non-commissioned officer of the 11th Airborne Division directs his men as they set up mortars and machine guns after a drop through space.

Your soldiers work hard . . . but also have time for play. Dances like this one, attended by enlisted men of the 3rd Infantry Division, are common at all Army camps and posts. Army athletic teams also offer recreational opportunities.



X-15 AWAY

. . . TARGET: 100 MILES UP! On a day surprisingly soon 45,000 feet above Wendover, Utah, North American's rocket-powered X-15 research plane will be released from a modified B-52 to take man 100 miles into outer space. Throughout the flight trajectory, radio contact between the X-15, the mother ship, chase planes and the ground will be maintained by custom-designed units from a Collins CNI (communication, navigation, identification) system, similar to the electronic packages Collins is providing for the new military jet aircraft.

COLLINS

COLLINS RADIO COMPANY, CEDAR RAPIDS • DALLAS • BURBANK • SEATTLE • MIAMI • WASHINGTON • NEW YORK • COLLINS RADIO COMPANY OF CANADA, LTD., TORONTO • COLLINS RADIO COMPANY OF ENGLAND, LTD., LONDON • COLLINS RADIO INTERNATIONAL, C. A., CARACAS, HONG KONG

GLOBAL GUARDIAN – Nowhere can an aggressor take refuge from America's mighty instrument of retaliation, the Northrop Snark SM-62... world's first intercontinental guided missile, now scheduled for delivery to the Strategic Air Command of the U.S. Air Force. These pilotless bombers are designed to carry nuclear warheads with unerring accuracy over intercontinental ranges. Snark missiles can be launched in mass from sites thousands of miles from their targets. This forceful deterrent to attack is an existing product of Northrop's "years ahead" engineering. Missiles, drones, supersonic jet aircraft, ground support and armament equipment, integrated weapon systems and other vital national defense elements are being developed and produced at Northrop, where simplicity and economy are vital elements in the continuing search for weapon systems to guard tomorrow's free America.

NORTHROP

NORTHROP AIRCRAFT, INC. • BEVERLY HILLS, CALIFORNIA

Builders of the First Intercontinental Guided Missile

THE BIG BOOK OF REAL HELICOPTERS

HOW THEY WORK • WHAT THEY DO • WHERE THEY FLY

Text and Pictures
by CLAYTON KNIGHT

SILVER DOLLAR

JET BOMBERS WON'T WAIT for you to aim your guns — you've got to do it with mechanical hands and electronic brains. Those 120 mm. muzzles must swing smoothly ahead of targets that are racing through space, must guide shells unerringly to points in the sky where invaders will be.

How is it done? By the M-33 fire-control system produced by Western Electric for the Army, a system based upon radars and electronic computers.

Many of the M-33's basic principles are the same as those used to guide your dial telephone call to the right number – and Western makes dial telephone systems, too. That's why, with 72 years of experience as manufacturing unit of the Bell System, we have the highly specialized skills needed to produce electronic equipment, such as M-33, for national defense.

At the same time we are doing work of this kind for the Armed Forces, we are also going full speed ahead with our regular job — making telephone equipment to help keep Bell System service going and growing.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

TRAINED IN AN ART AS OLD AS TIME!

At home in penthouse or on waterfront! Nameless, shameless woman...trading on love...baiting...yielding kisses that mean disaster! Serving a mob of violence whose one mission is to destroy...then—KILL!

RKO

I MARRIED a Communist

starring

LARAINE DAY · ROBERT RYAN · JOHN AGAR

and THOMAS GOMEZ · JANIS CARTER

Executive Producer SID ROGELL

Produced by JACK J. GROSS · Directed by ROBERT STEVENSON

Screen Play by CHARLES GRAYSON and ROBERT HARDY ANDREWS

Best Dressed Men on Main Street!

Soldier and Airman . . . Guardians of world peace . . . building their own futures in the U. S. Army and the U. S. Air Force.

To earn the right to wear these uniforms, young men must qualify on the basis of high physical and moral standards. Aptitude tests provide guidance for individual assignments, and there are opportunities galore for special skills and abilities.

As members of the U. S. Army and U. S. Air Force Team, both soldier and airman enjoy many advantages. All basic necessities are provided; clothing, food, housing, medical and dental care.

Educational opportunities are broad and generous. Pay incentives are definitely worthwhile. A man can retire with pay while he is still comparatively young. Never before have there been so many genuine opportunities for young men to qualify as the *best dressed men on main street!*

U. S. ARMY

Can you qualify? Learn more about the U. S. Army. Get this fact-filled, illustrated booklet at your nearest U. S. Army and U. S. Air Force Recruiting Station.

U. S. AIR FORCE

There's a career for you in the U. S. Air Force. Get all the facts. This booklet is available at your nearest U. S. Army and U. S. Air Force Recruiting Station.

FRONTLINE COMBAT

EC

No.5
SEPT-OCT.

10¢

WAR AND FIGHTING MEN

TOWER

PDC

YOU ARE THERE AS WE FIND THE ENEMY... FIX THE ENEMY...

25¢

APPROVED BY THE COMICS CODE AUTHORITY

MAR. No.3

FIGHT THE ENEMY

FRIEND or FOE?

How many? How far? How fast?

Time: 0314, on a U.S. Aircraft Carrier somewhere on the high seas. Wind 44 knots; visibility zero. And, somewhere out there in the fog are four "objects"—either as friendly as a neighbor's puppy or as deadly as a rattlesnake!

In a situation like this, somebody has to find all the answers—but quick! With 3,000 lives at stake and a hundred million dollars worth of equipment riding the waves, split-second identification of "what's out there," is a *must*.

They used to do the job with a half-frozen observer in the crow's nest, a megaphone and a handful of men on a spray-lashed bridge. Today, a crew of skilled technicians sit in the scientific maze of a modern Combat Information Center and call on Electronics to do the job. The mere flip of switches is enough to *see* what's ahead, identify its character, distance, and speed, and if necessary, alert the entire company through the intercommunication system and bring full fighting power to life.

This is "shipboard radar." A simple phrase for some of the most fantastic electronic equipment of our age. We at Stromberg-Carlson helped in its development and today provide to the armed forces many of its most important component parts. Thus the same engineering skill which, 60 years ago, harnessed Sound and Electricity for better communication methods still weds the pair to help preserve our national security. Perhaps *your* business has a problem we could help you solve.

There is nothing finer than a

Stromberg-Carlson®

Rochester 3, New York

Telephone Instruments and Central Office XY Dial Equipment | High Fidelity Radios and Radio Phonographs | "Panoramic Vision" Television Receivers | Office Intercom Equipment | Electronic Carillons for Churches and Public Buildings

AND MANY OTHER ELECTRONIC PRODUCTS FOR THE ARMED FORCES

ARMY'S NEW "SHOOT-AND-SCOOT" MISSILE SCORES SUCCESS

A new technique in warfare was dramatically demonstrated recently when the Army's latest missile, the Pershing, was successfully tested, using its new Bendix inertial guidance system.

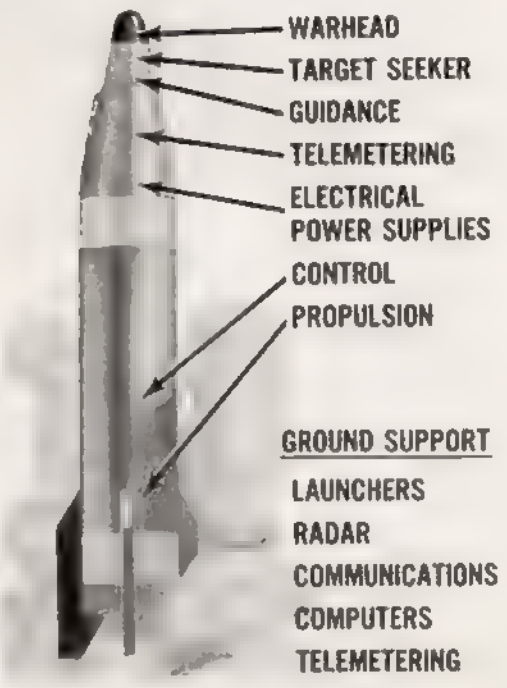
This all-weather, ground-to-ground weapon —sometimes called a "shoot-and-scoot" missile by engineers at The Martin Company, its prime contractor—requires no fixed launching site. It can be rushed to an unprepared site either by highly mobile ground launching equipment, or by aircraft, and fired in minutes. The installation then "scoots" before the enemy can zero in on the launching site.

Largely responsible for Pershing's deadly accuracy is the Bendix inertial guidance system. Bendix was selected for this job because of its previous experience in building similar types of equipment. Some of the more critical components are held to tolerances of *10 millionths of an inch.*

This is but one of many Bendix activities in the missile and space fields. We are prime contractor for the Navy's Talos missile. This *surface-to-air* missile is the principal armament of our new missile cruiser fleet, and because it has accuracy and far greater range than the big guns of yesterday, it has helped put the battleship in moth balls.

Bendix built, operates and maintains Minitrack and SPASUR, two of the three U. S. satellite tracking systems. The Bendix Satellite Tracker—a unique telescopic lens-TV combination recently developed for visual tracking—took what was probably the best telephoto of the Russian space ship, Sputnik IV, prior to its breakup.

THE Bendix CORPORATION
Fisher Bldg., Detroit 2, Mich



The general location of various Bendix-made systems and their components are shown here. No particular missile or satellite is represented in this drawing.

May 1961

A THOUSAND DIVERSIFIED PRODUCTS SERVING THESE FIELDS:

automotive • electronics • missiles & space • aviation • nucleonics • computer • machine tools • sonar • marine

June 1962

If you won't settle for less, the Army's the place for you

You feel like a man

when you can decide for yourself what you want from life, what kind of work, what kind of play, what kind of future . . .

when you can live a man's life, get out of the rut, travel clear across the world . . .

when you can do a man's work, put your mind and muscle into a job you can be proud of.

You feel like a man in the Army because

you can set your sights on the kind of future *you* want. You can get a good education, you can get training in your choice of many different fields. The opportunities for advancement, the chance to become a commissioned or non-commissioned officer, the retirement prospects . . . all are better than most men think . . .

you can visit strange and romantic countries while you're still young enough to see everything, do everything, get all that travel has to give you . . .

you can prove yourself physically, mentally and emotionally fit to do a man's work. You can have the satisfaction of helping to keep America so strong the war the whole world dreads need never happen.

If it's worth a lot to you to feel like a man, we'd like to explain just why the Army needs you . . . just how the Army can help you make the kind of life a man like you would be happiest in.

You can try the Army on for size . . .

There's nothing quite like an Army career; you don't have to gamble years in a job that may not work out for you. Fulfill your military obligation in the Army, and you'll have a chance for a good, close look at Army life, Army men, Army opportunities. Then you may decide it's Army for you all the way. Choice of training before enlistment for those who qualify. See page at right, and talk to the Army Recruiter.

Rush service to the top of the world!

On watch 24 hours a day, DEW (that's *D*istant *E*arly *W*arning) will probe the polar sky with radar. The DEW line will stand between *you* and a sneak attack over the top of the world.

Far north of any road or railroad, the DEW line depends on air transport for all supplies. Douglas transports, especially the C-124 Globemaster, handle the bulk of this assignment.

Big enough to swallow a tank, truck or a giant bulldozer. The C-124 moves cargo in quantity *so far and so fast* that logistics experts can plan smaller stockpiles—and less material en route in slower "pipelines." That results in stretching defense dollars farther. And the Douglas C-124 also doubles as a troop transport, hospital ship, repair shop or flying office.

Lifeline for the DEW Line—18th Air Force Douglas C-124

Development of the Douglas C-124 drastically simplifies supply problems. Specialists and material are never more than hours from any point on our defense perimeter. But good men are always needed. There's opportunity *for you* with the Air Force. Find out about it today!

Depend on **DOUGLAS** First in Aviation

Sprints from deck to stratosphere

His BEAT is the oceans of the world. His job, to challenge unknown intruders on our defense perimeters. A Navy pilot is a seagoing sentry on 24-hour duty.

A major role in this job of positive interception—and as far from our shores as possible—is being assigned to the Douglas F4D Skyray. Less than a minute after leaving the deck, Skyray can soar past the 10,000-ft. mark. Seconds later it's hissing through the stratosphere . . . 35,000 feet up . . . at the ready with rockets and cannons.

This rate of climb comes as no surprise. Skyray also holds the world's official F.A.I. sea level speed records for the 3- and 100-kilometre courses.

Douglas F4D Skyray—fastest carrier-based interceptor
Performance of agile Skyray continues the Douglas tradition of "faster and farther with a bigger payload." Yet performance figures are meaningless without a skilled pilot at the controls. If you are interested in a career as a Naval Aviator, write Nav Cad Washington 25, D. C.

Depend on *DOUGLAS* First in Aviation

Compact carrier-based A-bomber proves jet mechanic's dream

Ask Navy fliers what they think of the Douglas A4D Skyhawk and you'll hear about its ease of handling, its speed, its high lift and low drag.

But carrier flying is a team operation, and the men who keep A4D in the air have an equally interesting point of view. Most compact aircraft of its kind, Skyhawk's design emphasizes a combination of strength and speed with extreme simplicity (no need to fold its wings, for instance) Result: jet mechanics call A4D a maintenance man's dream.

Douglas A4D Skyhawk tops 650 mph. Development of the A4D Skyhawk by Douglas gave the Navy part of what it needs to keep a strong guard over vast ocean frontiers, but the Navy also needs young men to fly and service its aircraft. If you agree that defense is everybody's business, investigate a Navy career. Write Nav. Cad., Wash. 25, D. C.

Depend on *DOUGLAS* First in Aviation

35 ton bomber gets carrier shakedown

Largest and most powerful aircraft ever to operate from a carrier deck, the Douglas A3D Skywarrior has now completed landing and take-off tests aboard the U. S. S. Forrestal—the Navy's mightiest carrier. Able to deliver the A-bomb, at speeds above 600 mph, Skywarrior is designed to extend our carrier's striking range beyond any point yet reached.

U. S. Navy's atom bomber, the Douglas A3D Skywarrior

Continued advances in naval aircraft are meaningless without skilled fliers at the controls. If you are interested in a career as a Naval Aviator, drop a card today to *Nav. Cad., Washington 25, D. C.*

Depend on *DOUGLAS* First in Aviation

ATOMIC ENERGY
COMMISSION

AFS

AFSWC

45

CIVIL DEFENSE
USEHOLD FIRST AID KIT
Johnson & Johnson
S-34-1

WINTER [illegible]

50 CENTS

AIR PROGRESS

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

THE CESSNA STORY...

From Clyde Cessna's 1911 Monoplane to IFR Copters and Jet-Powered "407"

ROCKETS, JETS and MISSILES

CLASSICS Illustrated

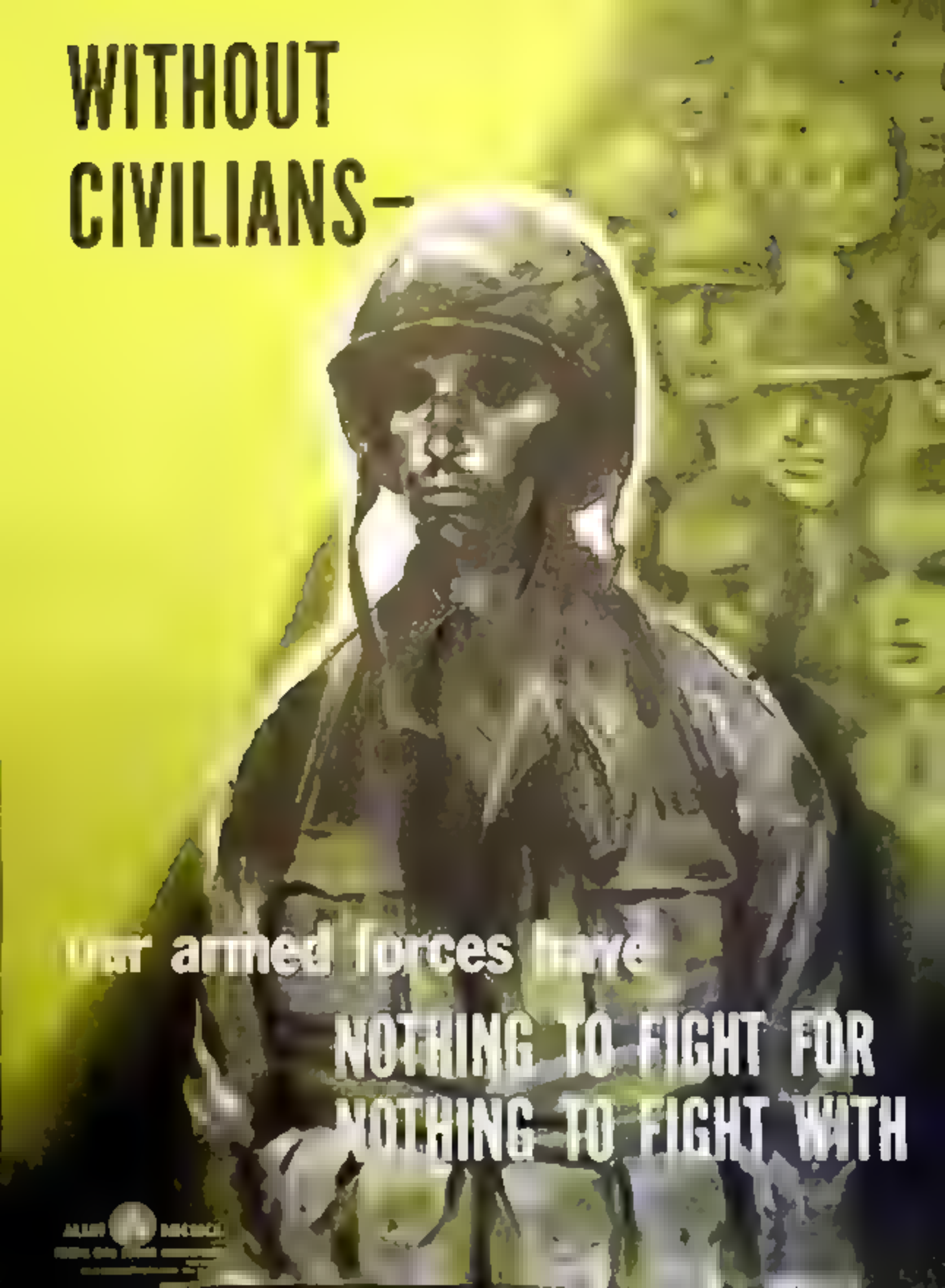
Special Issue

35¢

USAF
9260
EL PASO

IF WE ARE PREPARED
WE CAN

come back fighting


WITHOUT
CIVILIANS–
our armed forces have
NOTHING TO FIGHT FOR
NOTHING TO FIGHT WITH

150 MILLION
AMERICANS
ARE A MIGHTY FORCE
FOR PEACE

CHRYSLER SIREN: *Remote Controlled, with the Loudest Sound for Civilian and Plant Defense!*

An important contribution to Civilian Defense, the NEW Chrysler Air Horn Siren produces the loudest warning sound ever delivered for modern peacetime use.

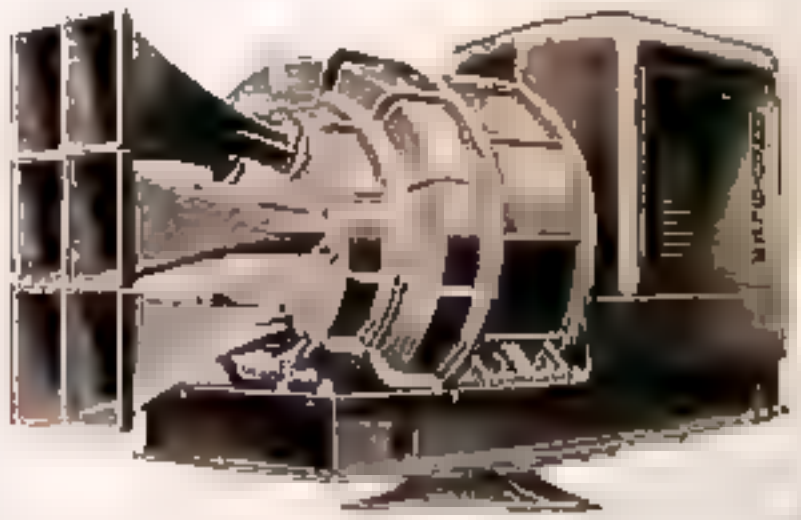
Powered by a new 100 horsepower Chrysler Industrial V-8 Engine modified Chrysler engineers to produce power for a 2-stage compressor forcing air pressure from the compressor discharge through giant horns at 120 miles per hour, producing a sound of approximately 124 decibels! The warning can be clearly recognized over a diameter of 4 miles under normal conditions.

It is designed to fill the pressing need for a *positive* signaling device for fire and industrial air raid warning. Because it has *self-contained power* it is independent of vulnerable central power systems.

One or any number Sirens may be remote controlled from a central control station if desired. They may be operated without personnel being on or near them. When in operation, the Siren makes one complete revolution every 10 min.

These Sirens are available only for Defense Warning Systems. They may be purchased by Cities and Towns, Defense Plants, Airports, Military Installations and other vital areas needing air raid protection.

For complete information, specifications and availability write: *Marine and Industrial Engine Division, Chrysler Corporation, 12302 East Jefferson Ave., Detroit 31, Michigan.*



THE 'OLD MAN'

Six months ago this young officer was an enlisted man. Today, a graduate of the U. S. Army's Officer Candidate School, he proudly grasps his commission as a 2nd Lieutenant. Tomorrow, the men he commands will call him the 'Old Man' . . . a nickname which refers to his grave responsibilities rather than his age.

He is following in the traditional footsteps of other generations of young Americans who have come from the farm, the factory, the office to lead other men in the defense of their country. He, as they, must possess the quality of courageous leadership in battle and the ability to provide for the mental, physical and moral welfare of his men in peace or in war.

This opportunity to become an officer in the U. S. Army has never been limited to any one class of citizens . . . but as befits a democracy is open to all young men—and women—who are properly qualified. And, their future success is limited only by their own desires and own abilities.

From the ranks of Officer Candidate Schools come some of the finest Officers in the U. S. Army. To them, the Army offers one of the most rewarding careers they can hope to achieve.

U. S. ARMY

You can get full information about the Officer Candidate School program at your nearest U. S. Army and U.S. Air Force Recruiting Station—today.

RECRUITING U.S. ARMY U.S. AIR FORCE

THE MARK OF A MAN

This badge marks a man chosen from hundreds for OCS training. It is truly THE MARK OF A MAN.

COMMUNICATIONS HEADPHONES WORN BY A U. S. ARMY SIGNAL CORPSMAN

HELMET LINER WORN BY CONSTABULARY PERSONNEL IN OCCUPIED GERMANY

ARMY FATIGUE CAP—POPULAR WITH ENLISTED MEN AT WORK AND AT PLAY

THINKING CAP...

Today's Army needs men of Action who are Thinkers as well

The regulation U. S. Army "Class A" uniform cap for all enlisted men, shown above, is a symbol of America's new Army. It is a *thinking* Army—adept at a multitude of technical specialities, trained to meet complex problems of modern military science, disciplined in the maintenance of a morale which has never been equalled

Today's Army needs men of intelligence, versatility, initiative and character—career-minded men who are equal to the opportunities afforded by the most technically advanced army in history

Enlistment requirements are higher, and educational opportunities within the Service are greater, than ever before Alert, qualified young men should examine the possibilities of a rewarding lifetime career in the new U. S. Army.

U. S. ARMY

There are many challenging career fields in the U. S. Army today, with broad opportunities for education, technical training, travel, recreation, advancement, security—and a wholesome, satisfying way of life. Talk with a U. S. Army career specialist today.

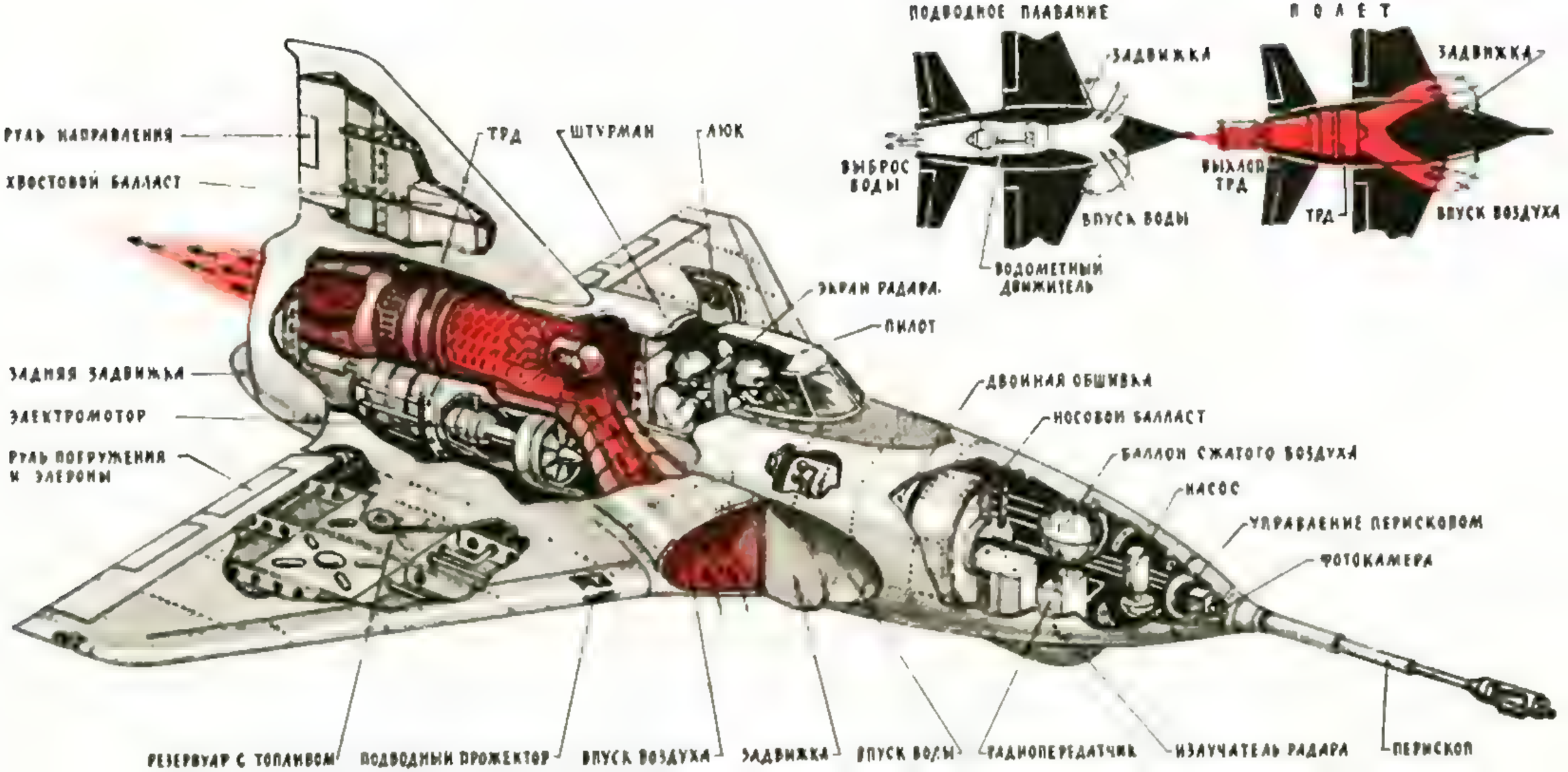
VISIT YOUR NEAREST
U. S. ARMY AND U. S. AIR FORCE
RECRUITING STATION

SPECIAL U. S. ARMY HELMET WITH NET COVER, WORN BY AIRBORNE TROOPER

FUR PARKA, DESIGNED FOR SUB-ARCTIC ASSIGNMENTS AND SKI TROOP TRAINING.

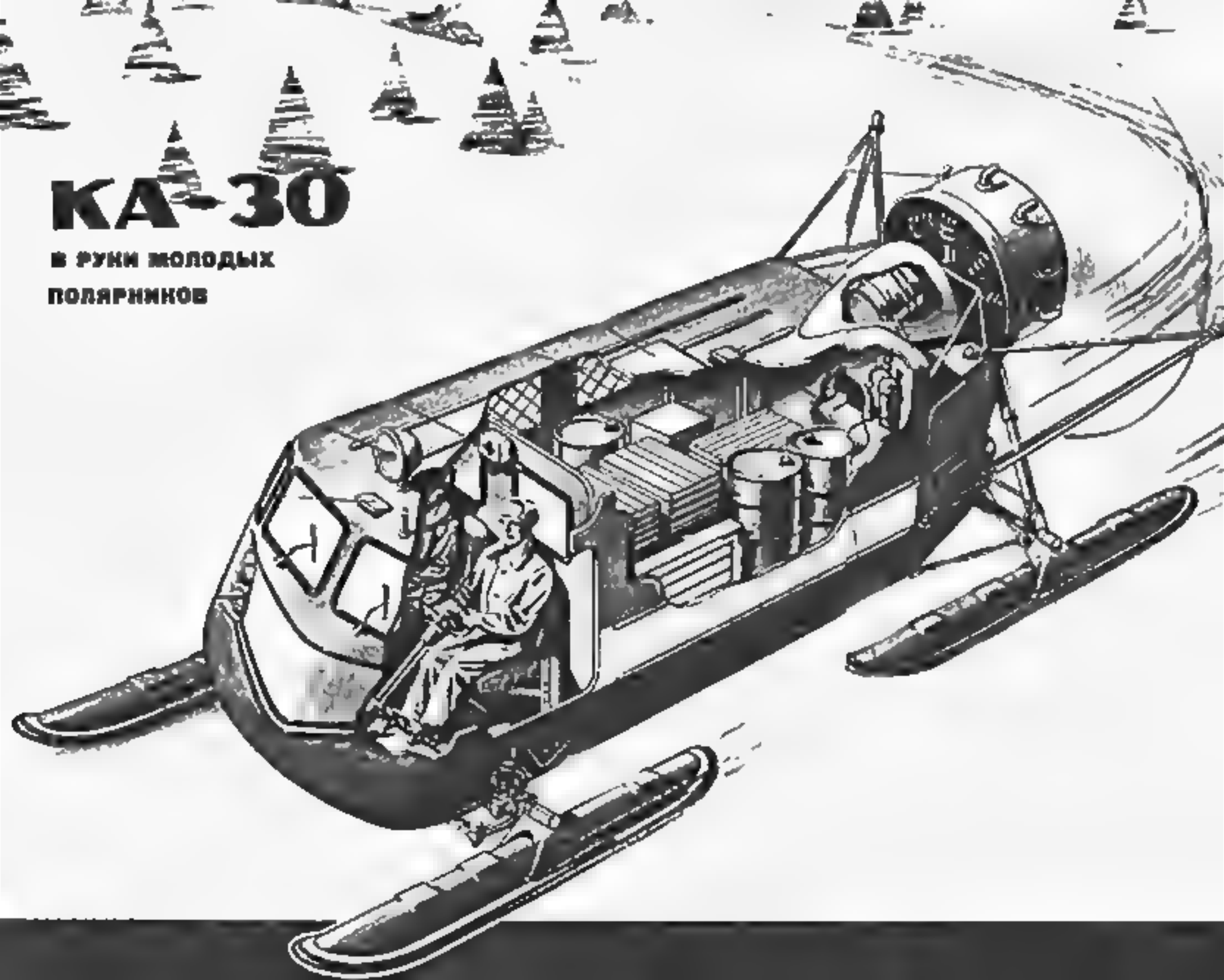
HELMET, WITH EARPHONE CUT-OUTS, FOR USE IN U. S. ARMY ARMORED FORCES.

ЛЕТАЮЩАЯ ПОДЛОДКА


ПОДВОДНОЕ ПЛАВАНИЕ
ЗАДВИЖКА
ВЫБРОС ВОДЫ
ВПУСК ВОДЫ
ВОДОМЕТНЫЙ ДВИЖИТЕЛЬ
П О Л Е Т
ЗАДВИЖКА
ВЫХЛОП ТРД
ТРД
ВПУСК ВОЗДУХА
РУЛЬ НАПРАВЛЕНИЯ
ХВОСТОВОЙ БАЛЛАСТ
ТРД
ШТУРМАН
ЛЮК
ЭКРАН РАДАРА
ПИЛОТ
ЗАДНЯЯ ЗАДВИЖКА
ЭЛЕКТРОМОТОР
РУЛЬ ПОГРУЖЕНИЯ И ЭЛЕРОНЫ
ДВОЙНАЯ ОБШИВКА
НОСОВОЙ БАЛЛАСТ
БАЛЛОН СЖАТОГО ВОЗДУХА
НАСОС
УПРАВЛЕНИЕ ПЕРИСКОПОМ
ФОТОКАМЕРА
РЕЗЕРВУАР С ТОПЛИВОМ
ПОДВОДНЫЙ ПРОЖЕКТОР
ВПУСК ВОЗДУХА
ЗАДВИЖКА
ВПУСК ВОДЫ
РАДИОПЕРЕДАТЧИК
ИЗЛУЧАТЕЛЬ РАДАРА
ПЕРИСКОП

КА-30

В РУКИ МОЛОДЫХ ПОЛЯРНИКОВ

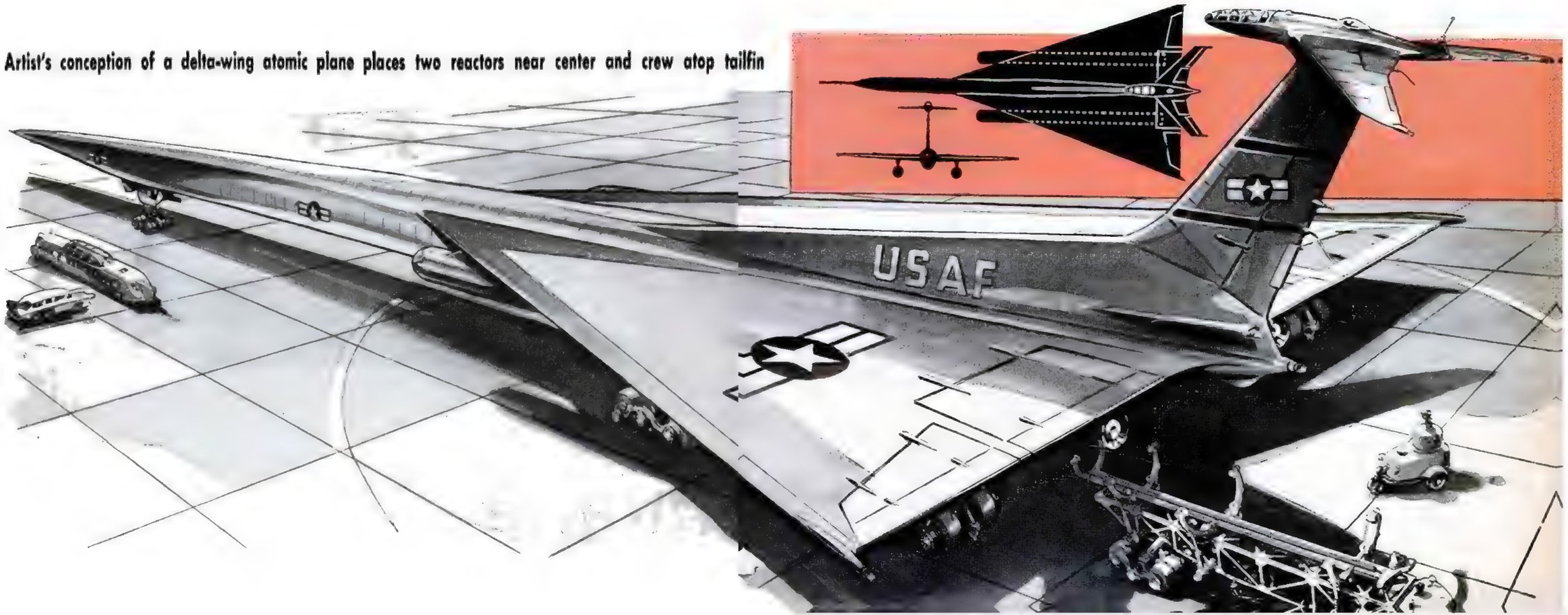


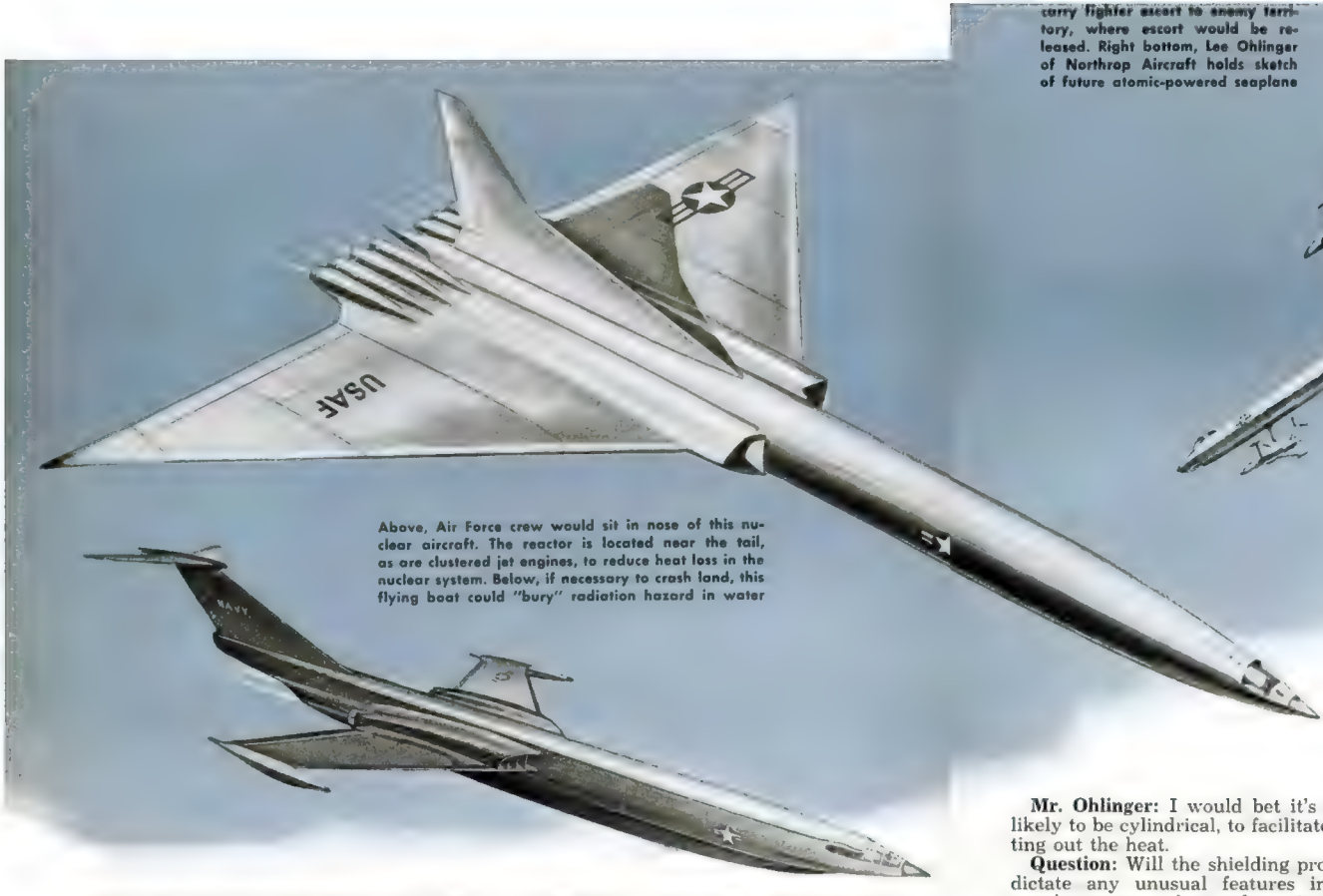
AK

СНЕЖНЫЕ

ЗА БОРТОМ — ГОЛУБОЙ КОНТИНЕНТ

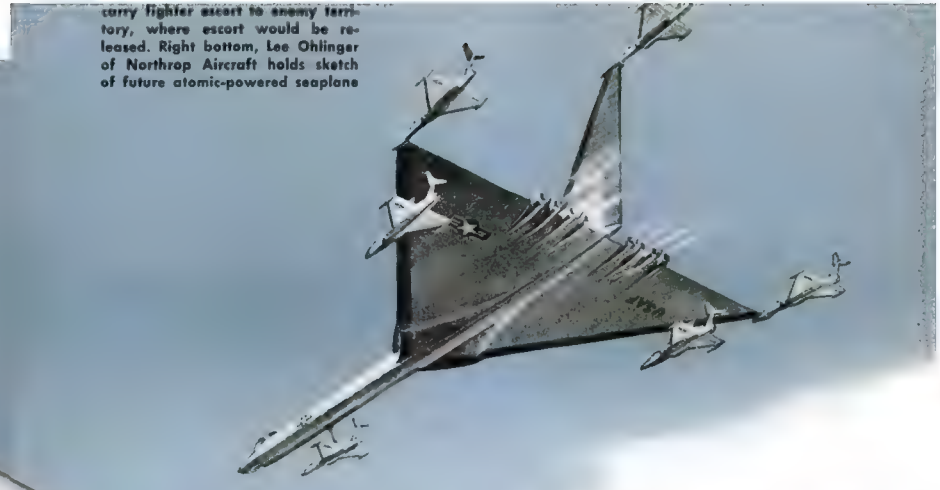
Artist's conception of a delta-wing atomic plane places two reactors near center and crew atop tailfin





Above, Air Force crew would sit in nose of this nuclear aircraft. The reactor is located near the tail, as are clustered jet engines, to reduce heat loss in the nuclear system. Below, if necessary to crash land, this flying boat could "bury" radiation hazard in water

carry fighter escort to enemy territory, where escort would be released. Right bottom, Lee Ohlinger of Northrop Aircraft holds sketch of future atomic-powered seaplane



planes—aerodynamic heating and protection of such vulnerable parts as, for example, the windshield.

Question: What is the biggest problem in the development of the plane?

Dr. Borst: Shielding is the paramount

Question: Can you give estimates on the size and weight of an airborne reactor?

Dr. Borst: The reactor could be a three or four-foot sphere. It would contain uranium, probably a moderator to slow down the neutrons, and would require a cooling

Mr. Ohlinger: I would bet it's more likely to be cylindrical, to facilitate getting out the heat.

Question: Will the shielding problem dictate any unusual features in the crew's quarters of a nuclear airplane?

Dr. Borst: To minimize shield weight, there would probably be an advantage to putting part of the shielding at the reactor, and part around the crew. Since the crew

old planes, where you had tandem cockpits.

Question: How far from the reactor will the crew have to be?

Mr. Ohlinger: This is related to the

APRIL 1957 35 CENTS

POPULAR MECHANICS MAGAZINE

A PM Round Table Conference Looks at

THE ATOMIC AIRPLANE

—page 100

Read!

WHAT OWNERS SAY ABOUT '57 CHEVROLET

CLASSICS Illustrated

Special Issue

Adventures in SCIENCE

35¢

ORCE

The HOW AND WHY Wonder Book of

ATOMIC ENERGY

$1.00

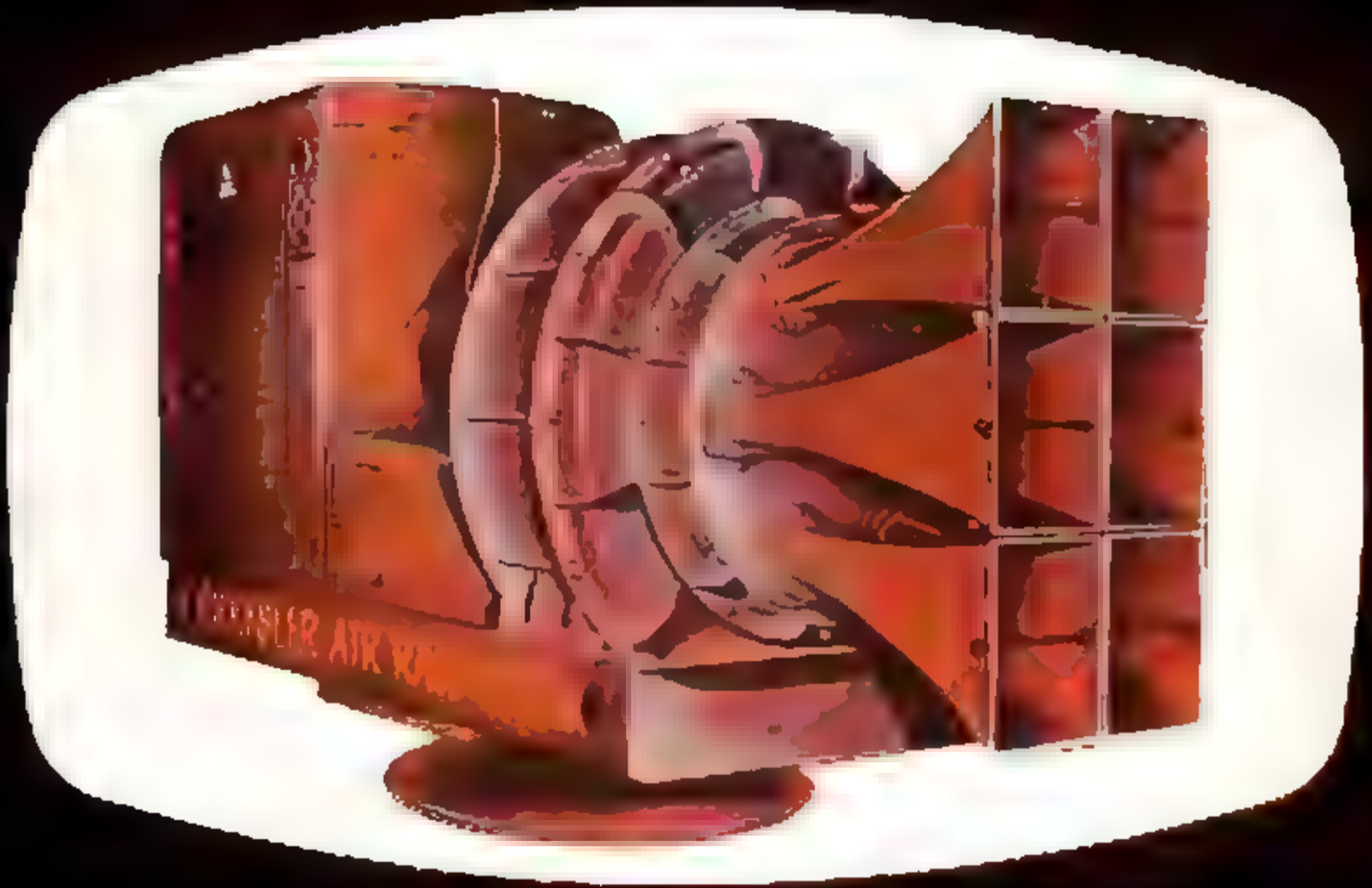
Deluxe Edition

A city which has suffered an A-bomb attack will have controls placed upon it similar to martial law—

ALL CIVIL DEFENSE CONTROL CENTERS
RADIO STATIONS
SIRENS
CIVIL DEFENSE PERSONNEL
EMERGENCY SERVICE
HOME
MOTORIST
HIGHWAY PATROL
PLANT PROTECTION
SHIPS
SIGALERT

CHRYSLER

AIR RAID SIREN



OPERATING SUGGESTIONS AND MAINTENANCE MANUAL

Chrysler Corporation

Marine and Industrial Engine Division

1000 VAN HORN ROAD • TRENTON, MICHIGAN

In Case of Attack!

TUNE YOUR AM RADIO DIAL TO

640 OR 1240

FOR OFFICIAL INFORMATION

CONELRAD

FEDERAL CIVIL DEFENSE ADMINISTRATION

Photo Copyright Colin Norwood

AIRLINERS.NET

602
5876
NAVY

TV spot news—by Raytheon Microwave

Because of Raytheon's microwave equipment, America's TV audience gets a ringside seat at important news events. Used to televise the Yucca Flat atomic explosion, Raytheon's Magnalink*— world's most powerful — beamed picture and sound to the TV station over 100 miles away. A compact, portable version is easily carried to a football game or fire.

Raytheon microwave units also provide connection with network TV and multi-hop relays over long distances. Picture and sound travel together. Another highlight in Raytheon's 25 years of *"Excellence in Electronics."*

RAYTHEON

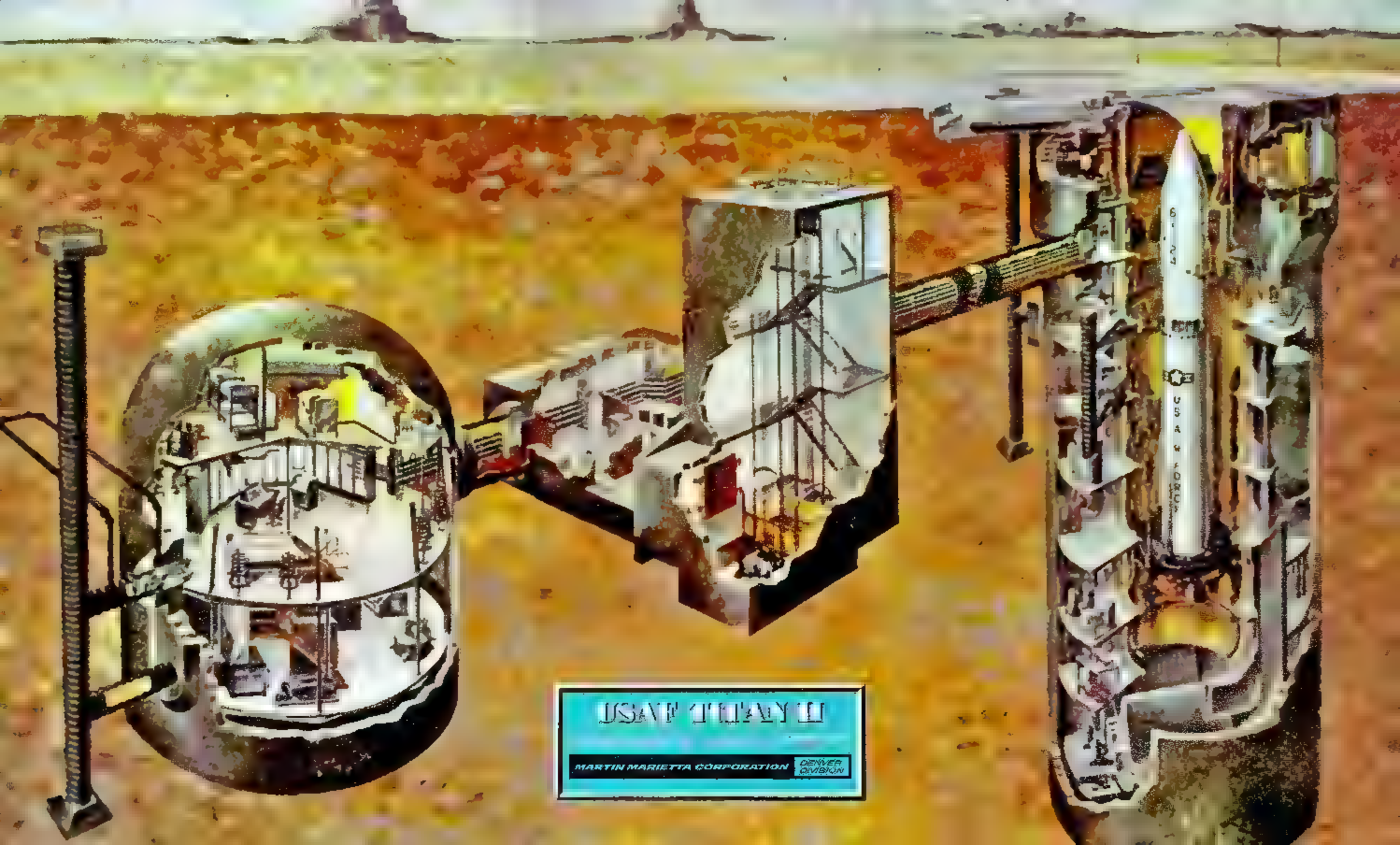
*Trademark

RAYTHEON MANUFACTURING COMPANY, WALTHAM 54, MASSACHUSETTS

RAYTHEON TELEVISION SETS feature new VU-matic* Control for all-channel VHF-UHF tuning. Raytheon TV — *"Built for Today—Designed for Tomorrow."* See it!

HEALING BY RADAR—Raytheon Microtherm* diathermy, used by leading hospitals and physicians, employs radar magnetron tube. Avoids radio and TV interference.

LIFE


USAF TITAN II
MARTIN MARIETTA CORPORATION
DENVER DIVISION

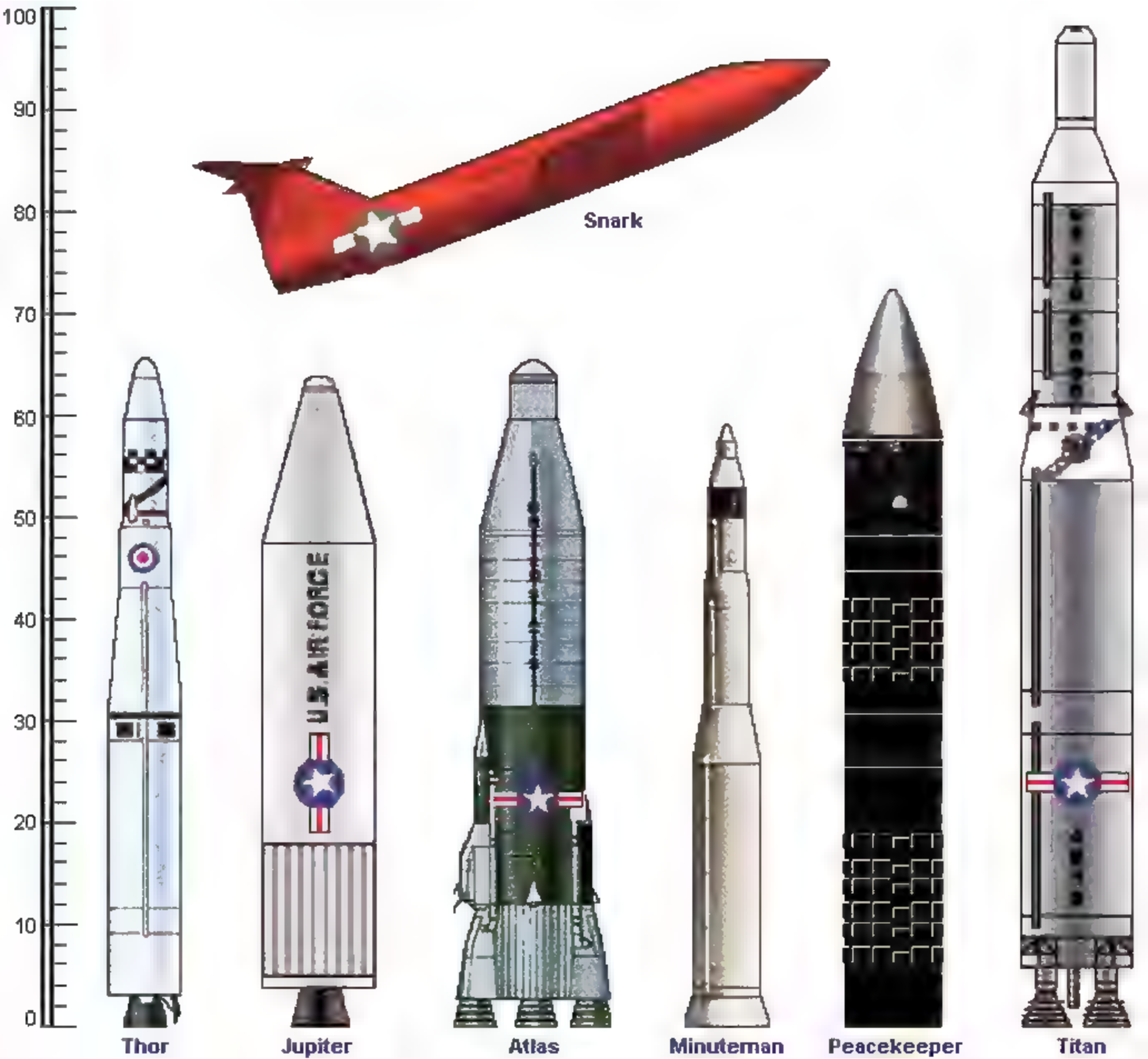
Finishing School for

GUIDED MISSILES

The HOW AND WHY Wonder Book of

ROCKETS AND MISSILES

50¢


100
90
80
70
60
50
40
30
20
10
0
Snark
U.S. AIR FORCE
Thor
Jupiter
Atlas
Minuteman
Peacekeeper
Titan

ДА ЗДРАВСТВУЕТ СТАЛИНСКАЯ АВИАЦИЯ!

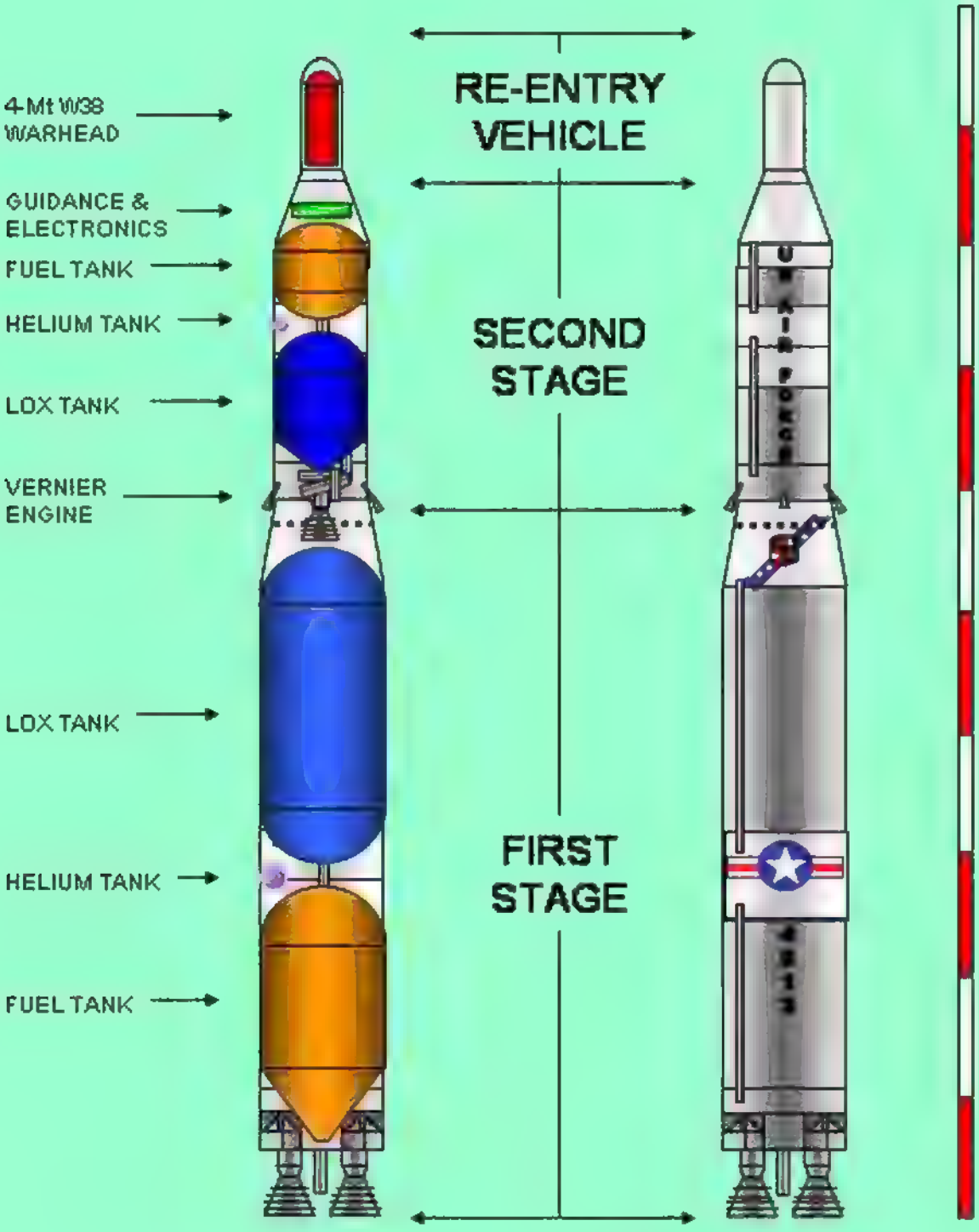
53124
U.S. AIR FORCE

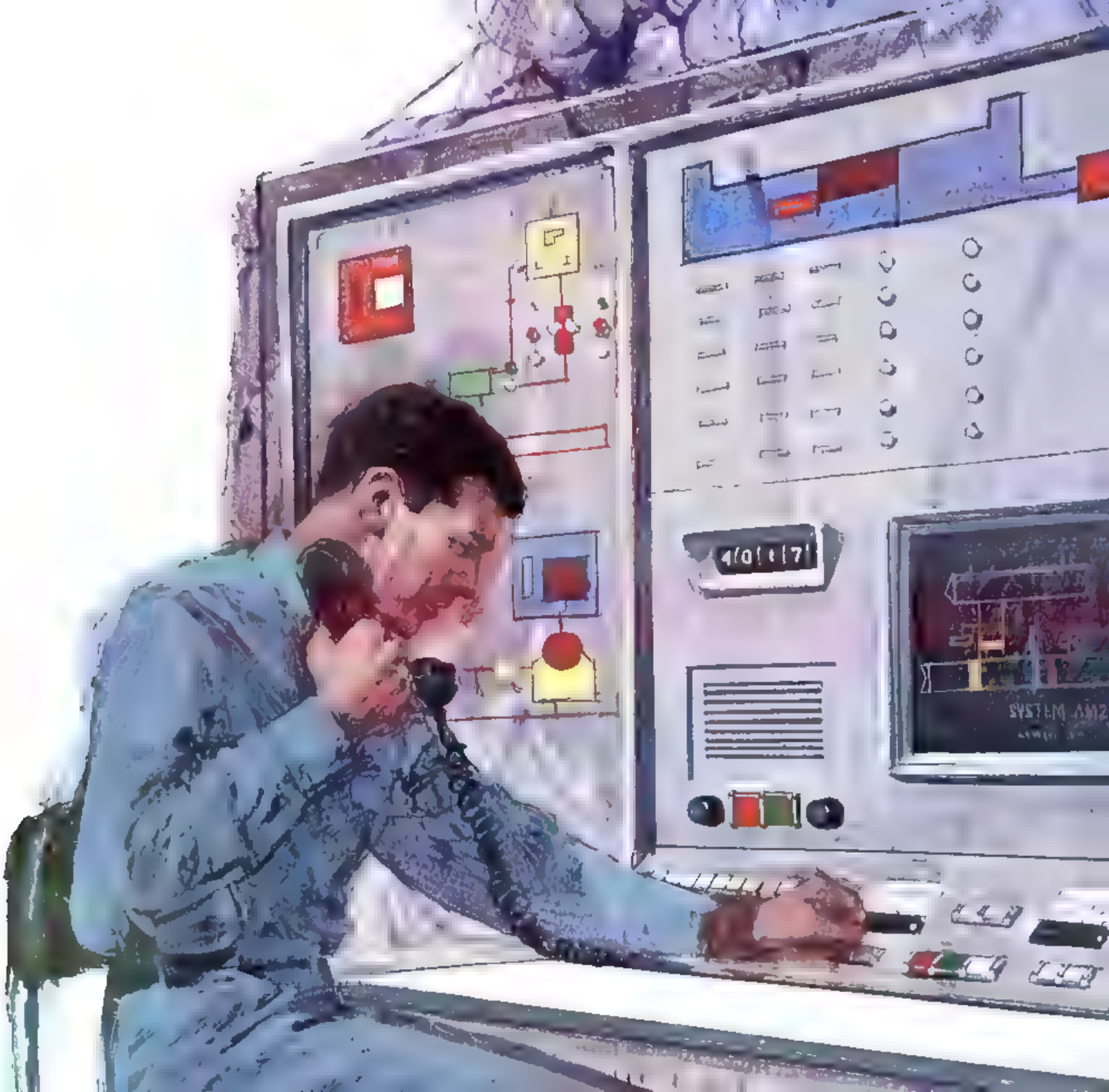
UNITED STATES OF AMERICA

STEP	
6. MCCC DMCCC	Launch keys, at commit time ..... Turned, held Simultaneously (within 2 seconds) turn keys for 5 seconds or until sequence starts. If LAUNCH ENABLE lights and sequence does not continue, refer to figure 2-1 of T.O. 2IM-LGM25C-121-1 for EWO launch and T.O. 2IM-LGM25C-2-11 for peace time launch. If LAUNCH ENABLE does not light and LAUNCH DISABLE lights refer to figure 2-2 of T.O. 2IM-LGM25C-121-1 for EWO launch. If abnormal indications occur during a peacetime launch, report to Launch Director and proceed as directed. If malfunction exists refer to T.O. 2IM-LGM25C-2-11.
7. MCCC	LAUNCH ENABLE ..... Lighted Indicates launch enable signal has been received from the CSS.
	CAUTION (DMAFB, LRAFB, MCAFB ONLY) If an automatic shutdown occurs prior to completion of step 9 of this checklist, turn off CB-103. Perform silo entry and visually verify that stage I prevalves are open. If stage I prevalves are open, perform silo exit and reinitiate launch when SIOP timing permits. If stage I prevalves are not open, perform silo exit, enter system lockout, and perform steps I through 8 of figure 3-23 of T.O. 21M-LGM25C -121-1 prior to reinitiating launch.
8.	BATTERIES ACTIVATED ..... Lighted Indicates APS and VHPS Batteries activated.
9.	APS POWER ..... Lighted Indicates power-transferred signal received by CMG.
10.	SILO SOFT ..... Lighted Indicates CMG has sent open-silo-closure signal to facility.

Figure 3-1. Launch Checklist (Sheet 2 of 3)

TITAN 1 ICBM CUTAWAY





A STRONG AMERICA IS A PEACEFUL AMERICA

VISIT ARMY DAY EXHIBITS APRIL 6

Your Army reports to you on personnel

Since V-J Day, your Army has demobilized and rebuilt. It is now a 100% volunteer force—the largest Army of volunteers ever to serve any nation during peace in world history.

But it is still short of the number authorized by Congress to carry out its world-wide assignments.

Its duties are greater than any nation has ever before faced with such limited numbers. In Japan, for example, your Army has the smallest occupation force per capita of any occupation army in modern history. In Europe, your forces are the smallest of any of the three major powers.

At home your Army recruits men and furnishes supplies for these world-wide forces. It builds for security and conducts research to help keep your defense ahead of the world.

To accomplish these goals with so few men calls for soldiers of higher caliber and greater efficiency than any peacetime army has ever had. That is why only about half the young men who volunteer can be accepted.

During the past year, enlistment standards have been raised to the highest requirements in your Army's history. The average soldier now scores 9% higher than the minimum for acceptance a year ago, and more than twice as high as the minimum under Selective Service.

Your soldiers who represent you today are by far the best educated, best trained and finest physical specimens of any army of any nation in world history.

You have every right to be proud of them.

But they need your continued interest and support. They are doing a tough job with fewer hands than they should have. They are shouldering responsibilities of world-wide importance.

It's your Army. You have helped generously to build it up to its present size. Your continued help is needed to reach the strength authorized by Congress and insure World Peace.

There is an opportunity for every young man to make a contribution to World Peace by serving in the Regular Army, the National Guard, the Organized Reserve or the R.O.T.C. You can get full details about these opportunities at any U. S. Army and U. S. Air Force Recruiting Station on Army Day.

KENNETH C. ROYALL
SECRETARY OF THE ARMY

New "hide-and-seek" missile bases on rails

A time-tested principle of warfare—swift maneuverability—is the railroads' newest contribution to the Missile Age.

Mobile launching pads on wheels will be able to fire missiles of intercontinental range from almost any point along the nation's 220,000 miles of railroad line. Most importantly, the mobility of these bases protects against enemy detection and destruction.

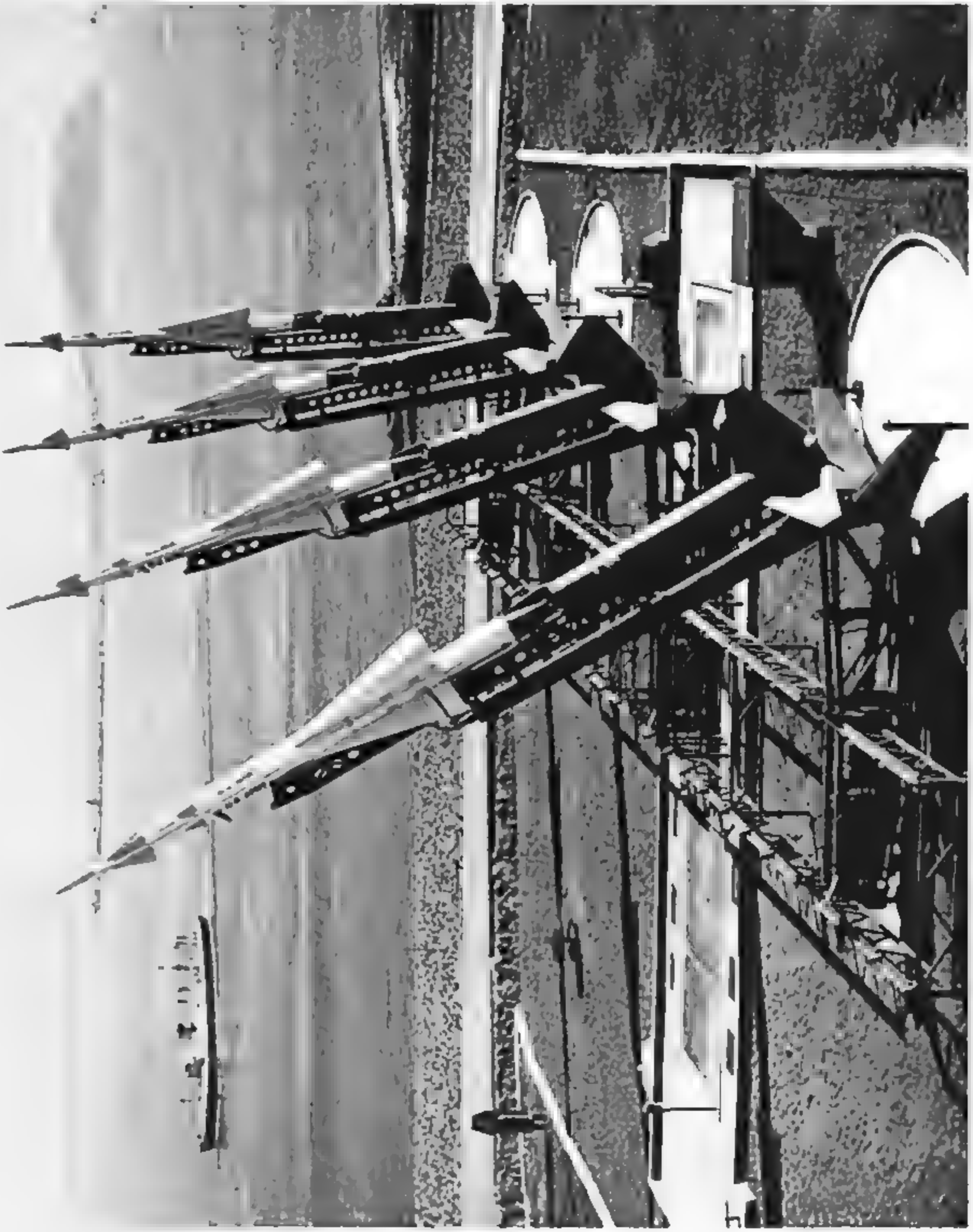
This development, announced by the Department of Defense, underscores once again how the needs of the nation are met by the railroads—the backbone of our transportation system in war and peace.

And it's one more reason why the health of the railroads must be assured through enlightened public policies, providing for equal treatment with competing forms of transportation. America's railroads—lifeline of the nation—are the main line to your future.

ASSOCIATION OF

AMERICAN RAILROADS

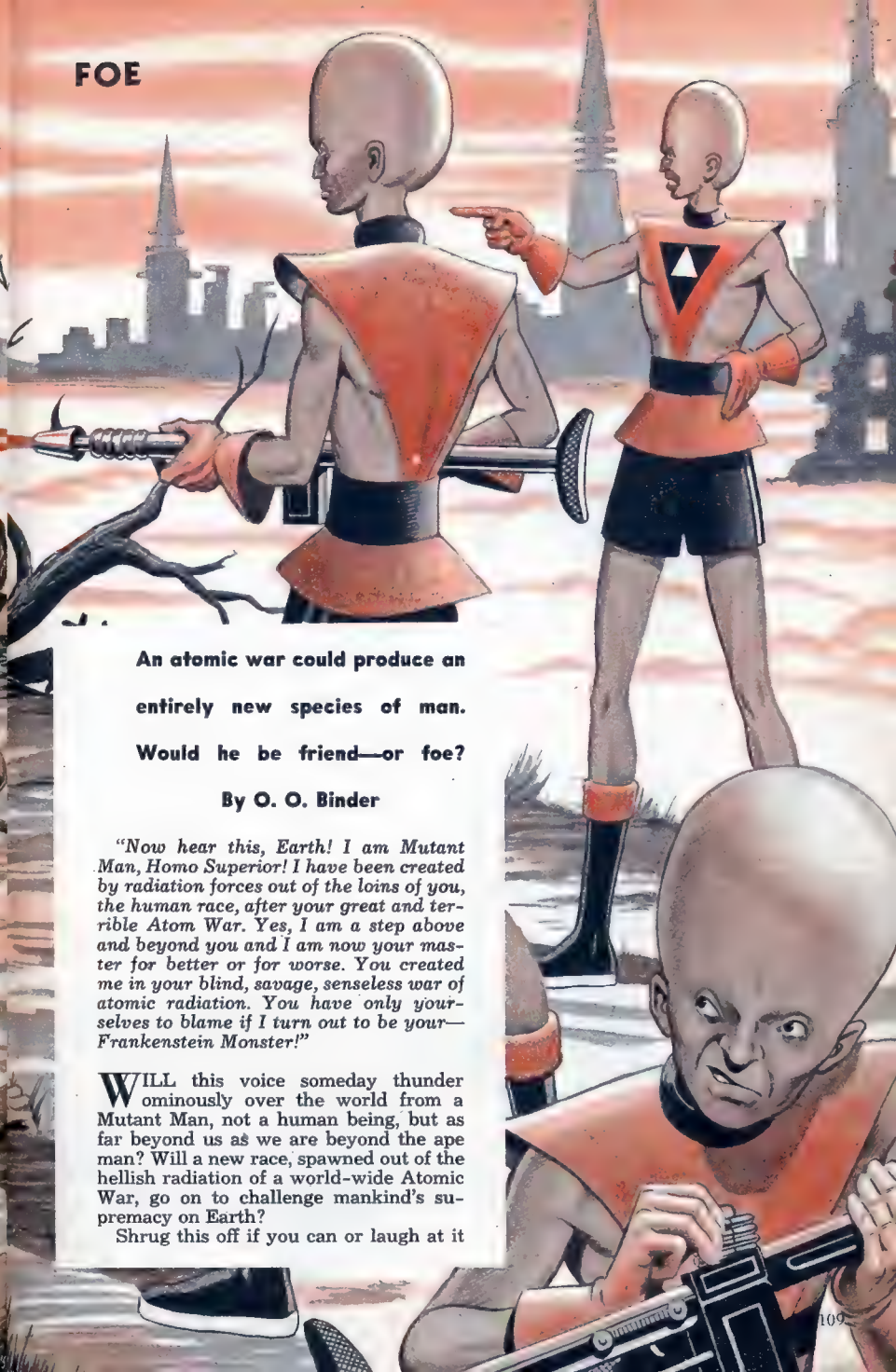
WASHINGTON 6, D. C.



How Nuclear Radiation Can Change Our Race

KURT R. SCHAFFENBERGER

FOE



An atomic war could produce an entirely new species of man. Would he be friend—or foe?

By O. O. Binder

"Now hear this, Earth! I am Mutant Man, Homo Superior! I have been created by radiation forces out of the loins of you, the human race, after your great and terrible Atom War. Yes, I am a step above and beyond you and I am now your master for better or for worse. You created me in your blind, savage, senseless war of atomic radiation. You have only yourselves to blame if I turn out to be your—Frankenstein Monster!"

WILL this voice someday thunder ominously over the world from a Mutant Man, not a human being, but as far beyond us as we are beyond the ape man? Will a new race, spawned out of the hellish radiation of a world-wide Atomic War, go on to challenge mankind's supremacy on Earth?

Shrug this off if you can or laugh at it

POPULAR SCIENCE

MONTHLY

MECHANICS AND HANDICRAFT

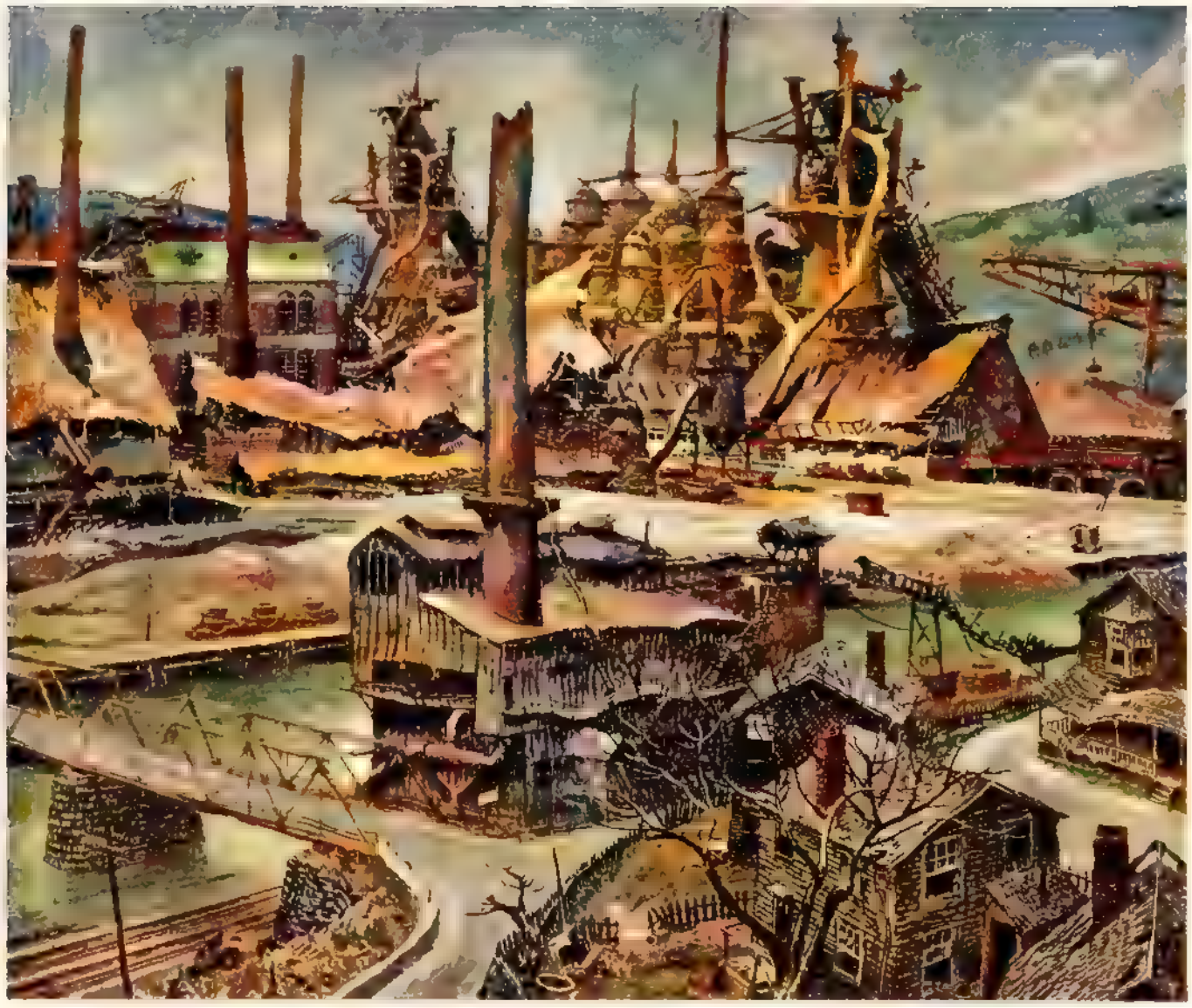
25¢ March, 1951

Russian Guns: How Good?

Save this issue:

How to Build A "Family Foxhole"

Copyrighted material



Atom Bomb? No...

America without Paint!

Without the protection afforded by the low-cost, quality products of the paint industry, you'd see scenes like this everywhere.

But thanks to paint, you not only get protection but beauty too. So there's added reason for painting . . . to *keep* America beautiful

During World War II, the Federal Housing Administration, knowing that painting was so vital, issued the following statement:

> "It is extremely important that all existing home properties be kept in the best of repair . . . owners should do everything in their power to keep their properties from becoming run down. When painting is neglected, particularly in the case of exteriors where weather has a chance to get at sidewalls and roofing, repairs are apt to run into very expensive bills. Delays likewise increase the amount of materials, many of them scarce, that will eventually be needed for proper repairs."

Today—with replacement costs high; with materials and labor scarce—it's more important than ever to provide low-cost protection for your belongings. Guard them against rust, rot, wear and weather with quality paints. See your paint contractor or dealer today. Paint costs so little, it's wise to bear in mind that *It always costs more NOT to paint!*

NATIONAL PAINT VARNISH AND LACQUER ASSOCIATION, INC., WASHINGTON 5, D. C.

Don't let anyone

steer you

the wrong way.

Help guide America

away from

Socialistic schemes

that might lead

to Communism.

BOHN ALUMINUM & BRASS CORPORATION

GENERAL OFFICES: LAFAYETTE BLDG. • DETROIT 26, MICHIGAN

EXTRUSIONS • CASTINGS • FORGINGS • PISTONS • BEARINGS
INGOTS • REFRIGERATION PRODUCTS • AIRCRAFT PARTS
AUTOMOTIVE REPLACEMENT PARTS

TELEVISION!

"American Forum of the Air" . . . . Every Sunday on NBC Television
Consult Your Newspaper for Time and Station

BOHN

EVERY RED MOVE

is calculated to
checkmate freedom.

Moscow's world-wide
attack pattern
never changes . . .
intrigue, lies,
pressure, threats,
violence, revolution.

The result is
Communism and slavery.

Look with suspicion
on EVERY RED MOVE.

The next move
may be aimed
at YOUR freedom.

BOHN

BOHN ALUMINUM & BRASS CORPORATION
GENERAL OFFICES: LAFAYETTE BLDG. • DETROIT 26, MICHIGAN

CASTINGS • FORGINGS • PISTONS • BEARINGS • EXTRUSIONS
INGOTS • REFRIGERATION PRODUCTS • AIRCRAFT PARTS
AUTOMOTIVE REPLACEMENT PARTS

TELEVISION!

"American Forum of the Air" . . Every Sunday Afternoon on NBC Television
Consult Your Newspaper for Time and Station

COMMUNISM wears a false face.

The hard, vicious face of Communism hides behind a mask of peace.

It's a clever masquerade to throw free people off guard.

It's a typical technique in the Kremlin crusade to dominate the world.

We must recognize this two-faced strategy.

We must never let Red deceit sabotage America's strength.

BOHN ALUMINUM & BRASS CORPORATION
GENERAL OFFICES: LAFAYETTE BLDG. • DETROIT 26, MICHIGAN

BEARINGS • EXTRUSIONS • CASTINGS • FORGINGS • PISTONS
INGOTS • REFRIGERATION PRODUCTS • AIRCRAFT PARTS
AUTOMOTIVE REPLACEMENT PARTS

TELEVISION!

"American Forum of the Air"... Every Sunday Afternoon on NBC Television
Consult Your Newspaper for Time and Station

BOHN

THE REDS

hitch hike on freedom.

They want to move into the driver's seat and steer America along a road of Socialistic schemes toward Communism.

If you open the door to fellow travelers today . . . they'll take *YOU* for a ride tomorrow.

BOHN

BOHN ALUMINUM & BRASS CORPORATION
GENERAL OFFICES: LAFAYETTE BLDG. • DETROIT 26, MICHIGAN

FORGINGS • PISTONS • BEARINGS • EXTRUSIONS • CASTINGS
INGOTS • REFRIGERATION PRODUCTS • AIRCRAFT PARTS
AUTOMOTIVE REPLACEMENT PARTS

TELEVISION!

"American Forum of the Air" . . . . . Every Sunday on NBC Television
Consult Your Newspaper for Time and Station

IT LOOKED SAFE

but it was

deadly poison.

A dose of Socialism

can be just as deadly.

It kills freedom . . .

leads to Communism.

Would you risk

a little POISON?

BOHN ALUMINUM & BRASS CORPORATION

GENERAL OFFICES LAFAYETTE BLDG. • DETROIT 26, MICHIGAN

FORGINGS • PISTONS • BEARINGS • EXTRUSIONS • CASTINGS
INGOTS • REFRIGERATION PRODUCTS • AIRCRAFT PARTS
AUTOMOTIVE REPLACEMENT PARTS

TELEVISION!

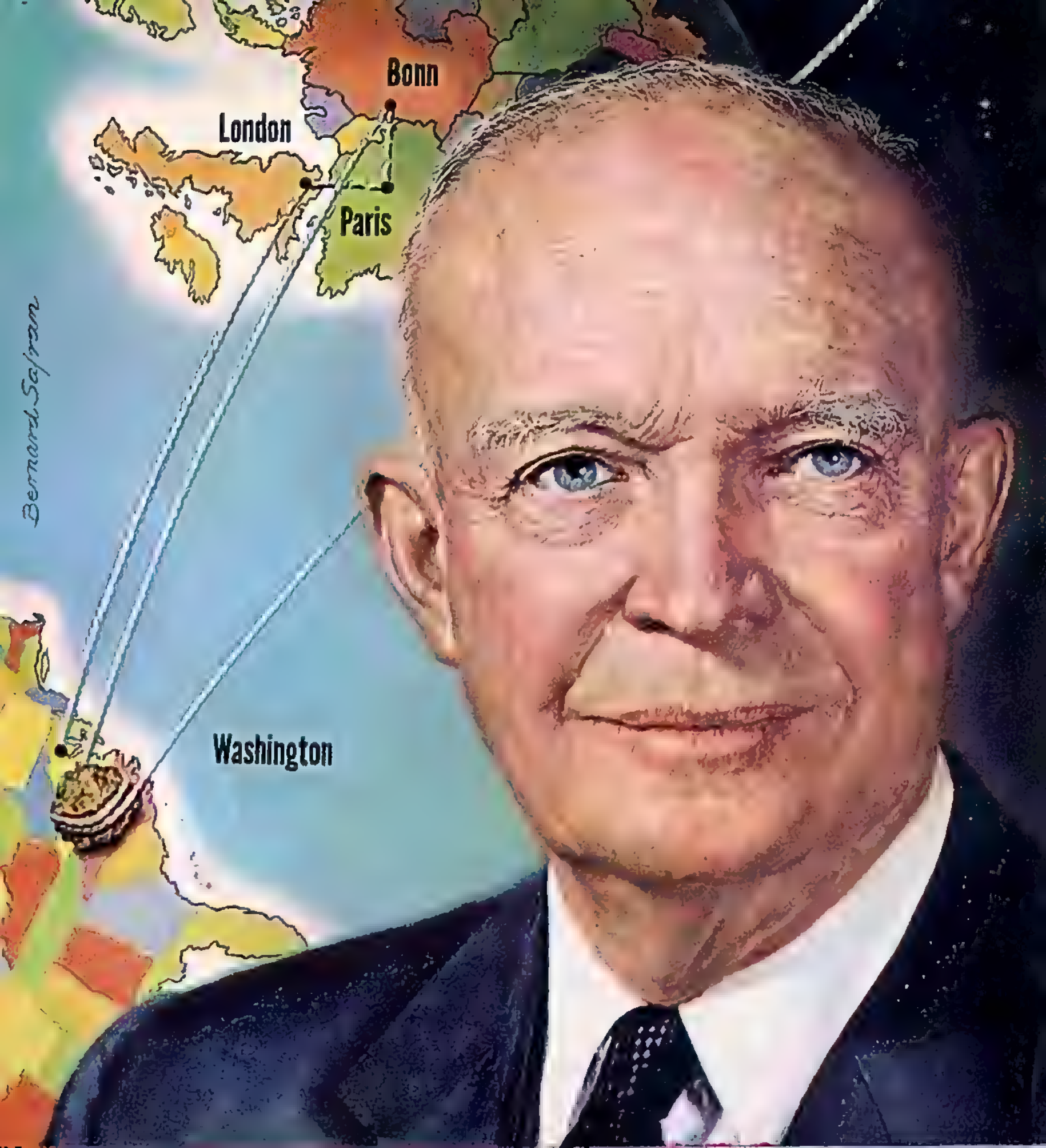
"American Forum of the Air"... Every Sunday Afternoon on NBC Television
Consult Your Newspaper for Time and Station

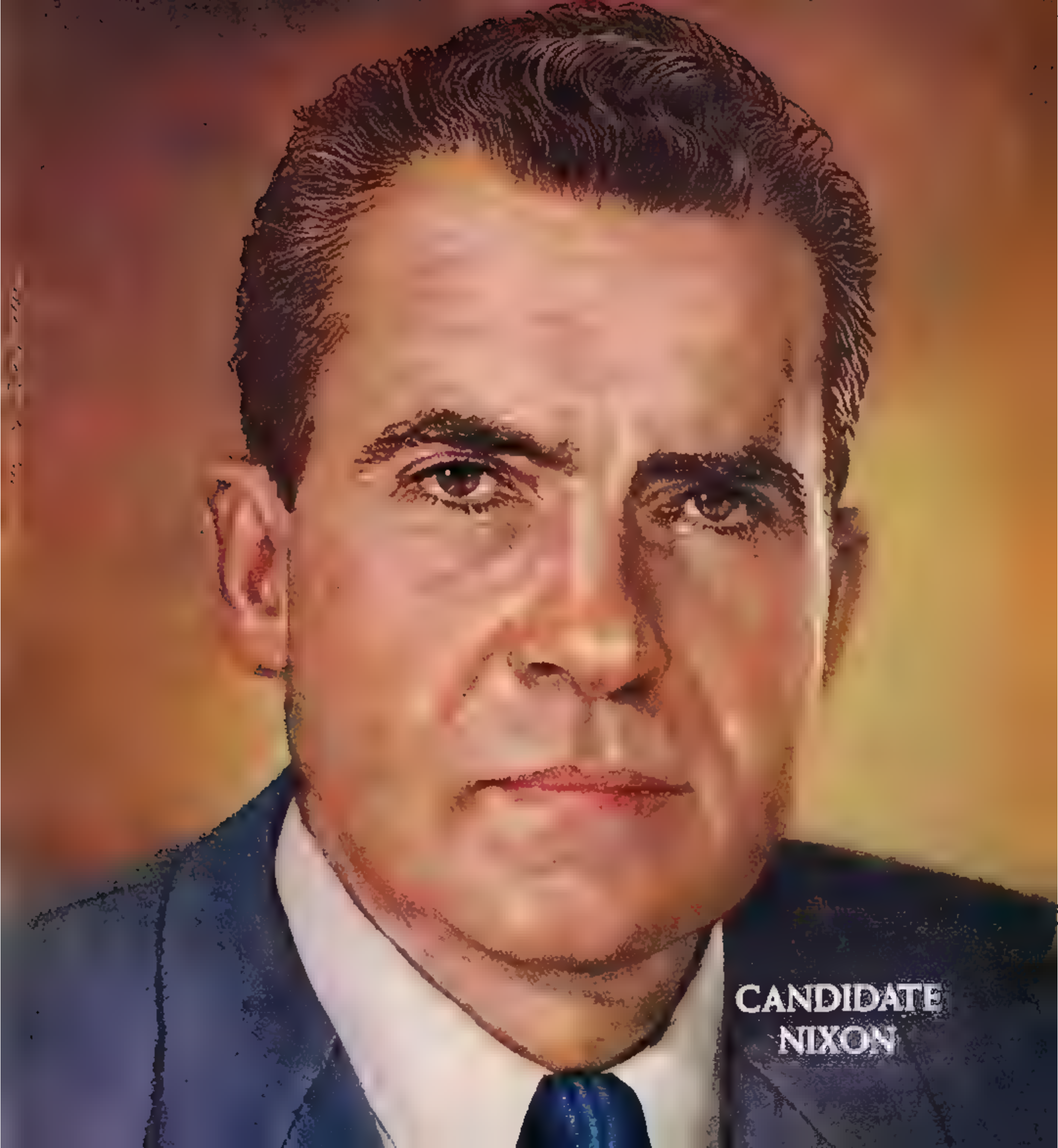
BOHN

DANGER
NO
SMOKING

THE WEEKLY NEWSMAGAZINE

FIDEL CASTRO


Bonn
London
Paris
Washington
Bernard Safran


CANDIDATE
NIXON

DDLE EAST: TOWARD THE BRI

TIME

ISRAEL'S
GOLDA MEIR

10

MILITARY PAYMENT CERTIFICATE

10

SERIES 681

C12209303C

TEN CENTS

15

10

FOR USE ONLY IN UNITED STATES MILITARY ESTABLISHMENTS BY UNITED STATES AUTHORIZED PERSONNEL IN ACCORDANCE WITH APPLICABLE RULES AND REGULATIONS.

10

MILITARY PAYMENT CERTIFICATE

3

SERIES 681

C E10236C

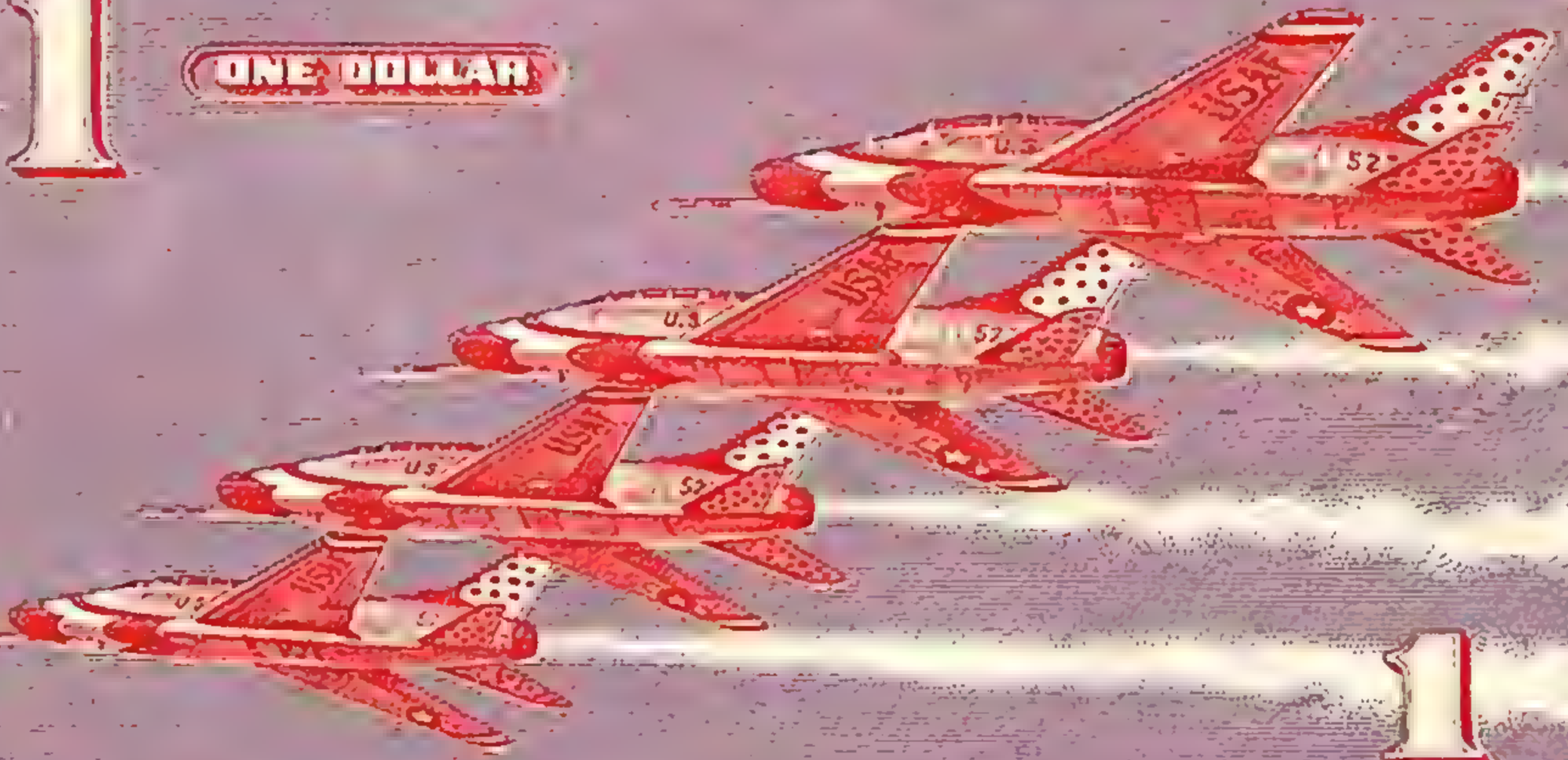
ONE DOLLAR

FOR USE ONLY IN UNITED STATES MILITARY ESTABLISHMENTS — BY UNITED STATES AUTHORIZED PERSONNEL IN ACCORDANCE WITH APPLICABLE RULES AND REGULATIONS.

MILITARY PAYMENT CERTIFICATE

1

ONE DOLLAR



1

FOR USE ONLY IN UNITED STATES MILITARY ESTABLISHMENTS — BY UNITED STATES AUTHORIZED PERSONNEL IN ACCORDANCE WITH APPLICABLE RULES AND REGULATIONS.

MILITARY PAYMENT CERTIFICATE
20
DOLLARS
20
20
DOLLARS
20
FOR USE ONLY IN UNITED STATES MILITARY ESTABLISHMENTS — BY UNITED STATES AUTHORIZED PERSONNEL IN ACCORDANCE WITH APPLICABLE RULES AND REGULATIONS

Revell

Authentic Kits

LITTLE JOHN

DART

- ★ COMPLETELY FORMED PLASTIC PARTS
- ★ EASY TO BUILD
- ★ READY TO PAINT

U.S.ARMY TACTICAL ROCKETS SET

OFFICIAL

MILK...*new weapon of Democracy!*

Supplied by air transport alone, 2½ million Berliners sample a new way of life

• In today's diplomatic Battle for Berlin, hope for democracy is being kept alive for millions in Western Europe by the U. S. Air Force.

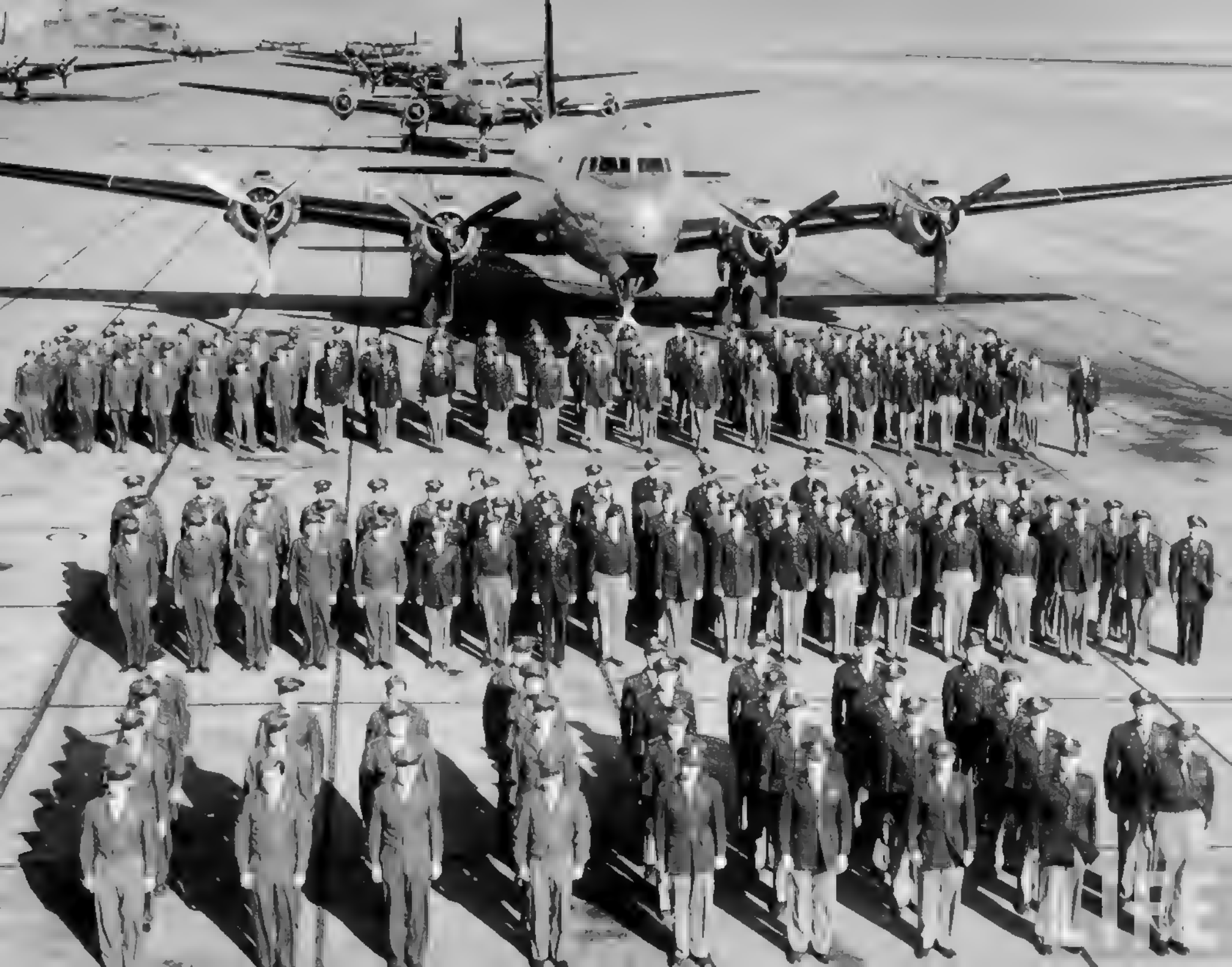
Flying Douglas aircraft almost exclusively, Yankee crews have poured over half a million tons of supplies into Berlin since last June. This impressive feat has strained to the limit our resources in air transport. *It has shown why cargo planes in sufficient numbers must be considered essential to any modern military defense program.*

Needed—and desperately—are larger, faster types of aircraft designed exclusively for air transport. And to meet this need, Douglas is now building the giant Douglas DC-6A. Able to fly 30,000 lb. loads at 300 mph, the DC-6A will make available to the military services a cargo transport of *rugged dependability*, capable of supplying world-wide bases in any kind of national emergency.

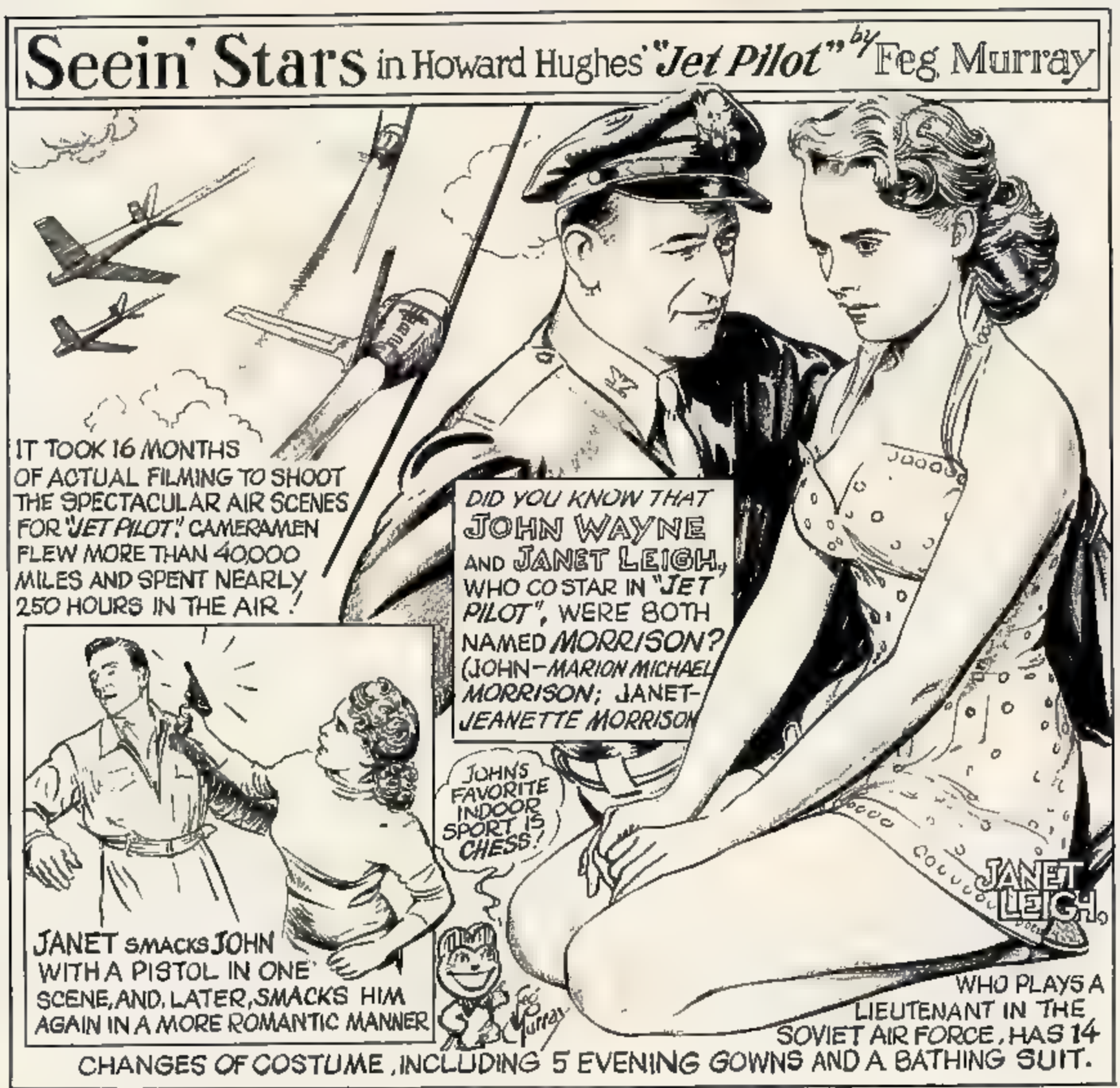
DOUGLAS

» SERVING MANKIND AROUND THE WORLD

DOUGLAS AIRCRAFT COMPANY, INC.



Seein' Stars in Howard Hughes' "*Jet Pilot*" by Feg Murray


IT TOOK 16 MONTHS OF ACTUAL FILMING TO SHOOT THE SPECTACULAR AIR SCENES FOR "JET PILOT." CAMERAMEN FLEW MORE THAN 40,000 MILES AND SPENT NEARLY 250 HOURS IN THE AIR!
DID YOU KNOW THAT JOHN WAYNE AND JANET LEIGH, WHO CO-STAR IN "JET PILOT", WERE BOTH NAMED MORRISON? (JOHN—MARION MICHAEL MORRISON; JANET—JEANETTE MORRISON
JOHN'S FAVORITE INDOOR SPORT IS CHESS!
JANET SMACKS JOHN WITH A PISTOL IN ONE SCENE, AND, LATER, SMACKS HIM AGAIN IN A MORE ROMANTIC MANNER
JANET LEIGH,
WHO PLAYS A LIEUTENANT IN THE SOVIET AIR FORCE, HAS 14 CHANGES OF COSTUME, INCLUDING 5 EVENING GOWNS AND A BATHING SUIT.
Murray

JET PILOT MAT 3-X

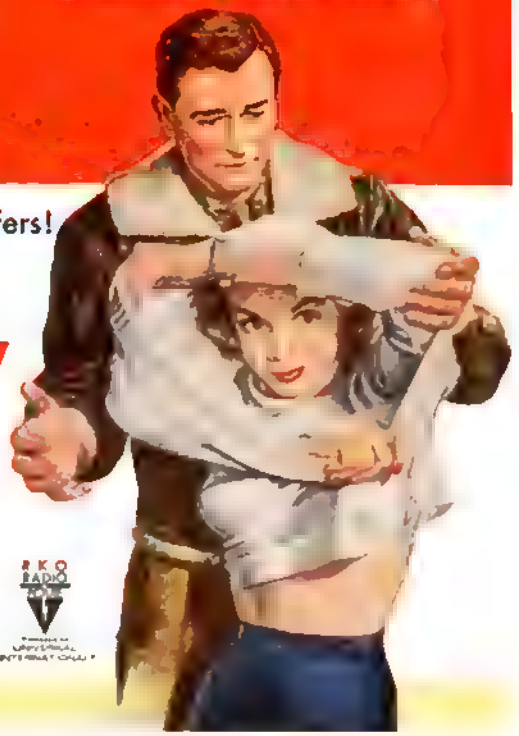
(8x10 still available from Exploitation Dept., Universal Pictures, 445 Park Ave., New York 22)

FAMED CARTOONIST Feg Murray devotes one of his popular Seein' Stars features to Howard Hughes' "Jet Pilot," which comes to the.....Theatre on.....
The spectacular RKO production, which stars John Wayne, Janet Leigh and the U. S. Air Force, was years in the making and is hailed as the greatest air epic since Hughes' never-to-be-forgotten "Hell's Angels." Filmed in Technicolor, it was directed by Josef von Sternberg.

JET-FLAME ACTION!
JET-HOT THRILLS!

Exploding with all the power of the Jet Age . . . with all the passion of a daring love story!

No man can pay the price for what this woman offers!



HOWARD HUGHES'

JET PILOT

Starring

JOHN WAYNE · JANET LEIGH

AND THE

U.S. AIR FORCE

[illegible] JAY C. FLIPPEN · PAUL FIX · HANS CONRIED

TECHNICOLOR®

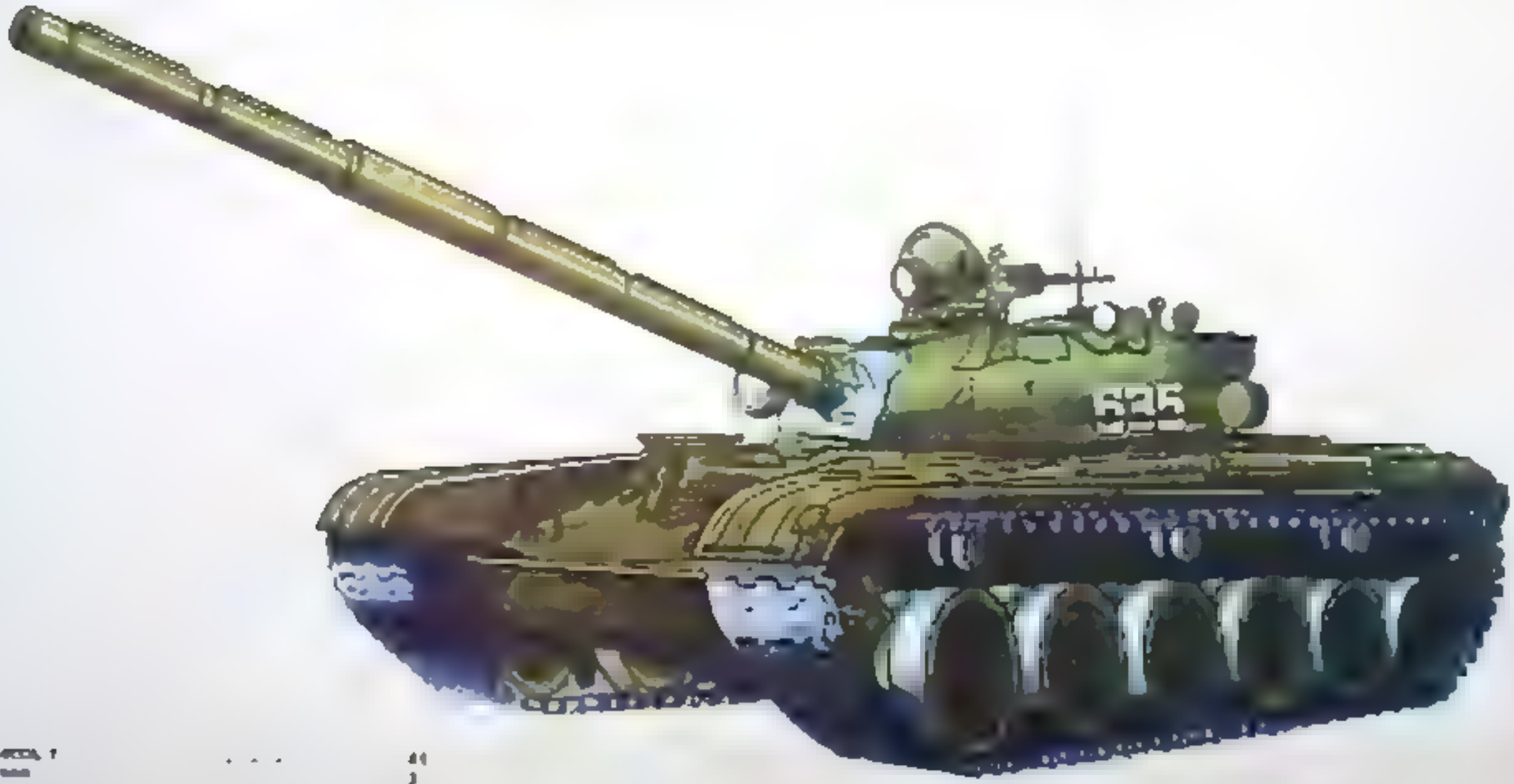
RKO RADIO

Directed by JOSEF von STERNBERG · Written and Produced by JULES FURTHMAN

USAF

Vought engineer...higher...faster...farther

СРЕДНИЙ ТАНК Т-72



Боевая масса, т	41
Экипаж, чел.	3
Мощность двигателя, л. с.	780
Удельное давление на грунт, кгс/см²	0,83
Скорость, км/ч:	
максимальная	60
средняя на пересеченных дорогах	35—41
Запас хода, км	450
Вооружение:	
пушка 125-мм гладкоствольная пушка, оснащенная инфракрасным прицелом для ночной стрельбы	

Особенности конструкции: многотопливный дизель, автомат заряжания пушки, система стабилизации пушки в двух плоскостях, резинометаллические гусеницы. Танк укомплектован самоокапывателем, который позволяет экипажу за 12—25 мин отрыть в грунте капонир. После дооборудования может двигаться под водой на глубине 3—5 м.

ОВЛАДЕВАЙТЕ ВОЕННЫМИ ЗНАНИЯМИ В ОРГАНИЗАЦИЯХ ДОСААФ.

РАБОТАТЬ ПЛОХО НЕ ПОЗВОЛИМ !

Its name is simple and to the point: BMEWS—Ballistic Missile Early Warning System. But to fulfill that function, its engineering requirements are among the most complex and demanding ever specified.

IT MUST detect and track a missile flashing through outer space at speeds exceeding 15,000 miles per hour.

IT MUST "see" a hostile ICBM only a few minutes after it is airborne, compute its probable course—and relay precise data to alert defense and counterstrike forces.

IT MUST work around the clock—under the most severe wind and weather conditions.

Because of these extreme requirements, all possible components of the system are being thoroughly tested. The huge early warning "watchman" shown here is a prototype model—designed and built by Goodyear Aircraft for the Radio Corporation of America, prime contractor on BMEWS for the U. S. Air Force. The Goodyear Aircraft components—radar antenna, pedestal and radome—are now proving their team workability at an RCA field test site. You get some idea of their size and capability when you consider these facts:

—The concave tracking "dish" and rotating components weigh more than 200,000 pounds, *yet* it rotates and maneuvers with fluid ease and perfect balance.

—The supporting pedestal is three stories high, structured for the immense load it must carry, *yet* it is one of the most accurate mechanisms of its type ever made.

—The 140-foot-diameter radome can withstand gale-force winds and arctic storms, *yet* it offers almost complete electromagnetic transparency and requires no internal framework. The six-inch walls are composed of 1646 hexagonal and pentagonal panels.

These achievements stem from Goodyear Aircraft's long experience in radar and radome design, development, fabrication and testing. Such experience provides an invaluable background *for virtually any radar system assignment*—from farseeing radar structures of unprecedented accuracy to giant radomes of advanced architecture and improved materials.

Meeting the requirements of America's most exacting weapon systems with solidly based capabilities in structural plastics, metals fabrication, electronics and missile construction has earned Goodyear Aircraft a prime position in the defense of freedom and the exploration of space.

Your inquiry is invited. WRITE: Goodyear Aircraft Corporation, Dept. 916HJ, Akron 15, Ohio.

RADAR STRUCTURES and RADOMES
—prime capabilities of

GOODYEAR AIRCRAFT

Plants in Akron, Ohio, and Litchfield Park, Arizona

TERRA

UTOPISCHE ROMANE

Science Fiction

HILFE AUS ANDROMEDA

BAND 63 / 60 Pfg.

Österr. S 1.50

MOEWIG VERLAG

What happened at RUNNYMEDE that makes us different from the RUSSIANS ?

DO YOUR CHILDREN KNOW?

In 1215, "in a meadow which is called Runnymeade" on the Thames in England, King John affixed his seal to the Magna Carta. This is a fact to be found in almost any encyclopedia. But what good does it do your children to learn dates and names unless they can relate them to living?

That is the remarkable contribution Compton's makes. It is "written to read." In Compton's a young reader reads on and is helped to understand that at Runnymede the principle that the government itself must govern by law became a part of our heritage, so that we are forever protected against the arbitrary rule that passes for justice in Russia.

Compton's is not just a "look-it-up-for-homework-and-then-forget-it" encyclopedia. Every article in Compton's is written by experts for accuracy, and then re-written in the Compton style that makes even technical articles easy reading. "Pictures that teach" on almost every page of every volume contribute to still greater understanding. An exclusive Fact-Index in each volume leads young readers from subject to subject, leads them to read more and more, leads them to knowledge.

What a wonderful advantage it gives a child to have Compton's Pictured Encyclopedia. You can give it to your family for as little as six dollars a month.

Pictured Encyclo-pedia

FIRST IN QUALITY

F. E. COMPTON & COMPANY, COMPTON BUILDING, CHICAGO 10.
In Canada: F. E. Compton of Canada, Ltd., 207 Queens Quay West, Toronto 1, Ont.

XR

The ATOMIC AGE

CLASSICS Illustrated

Special Issue

35¢

Drill Night

From a point high on the campus, a radar beam searches the sky. Lights burn in classrooms. Khaki replaces tweed and covert for the night as college men assigned to Reserve units study the machines and methods of defense.

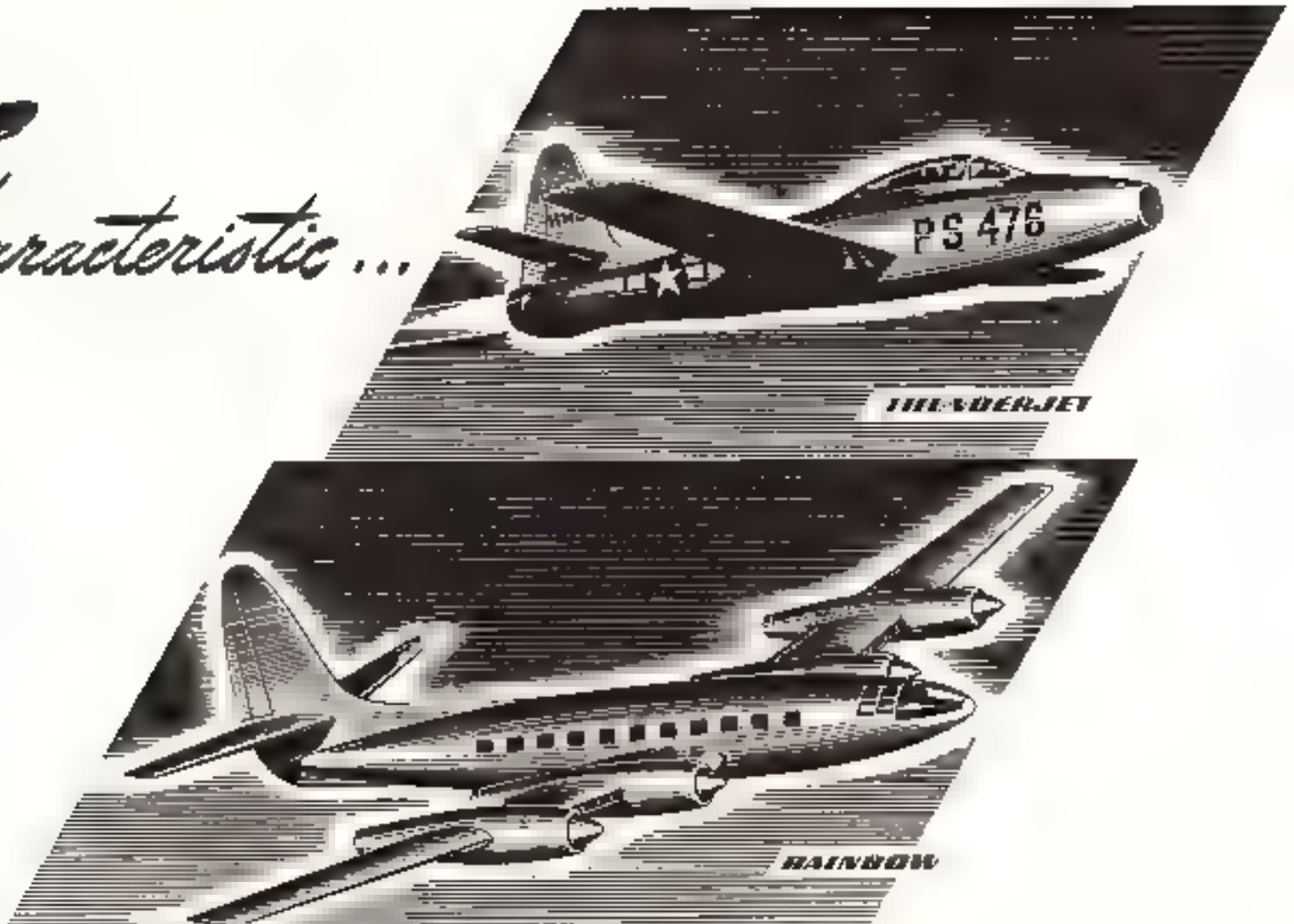
Preparedness is the order of the day.

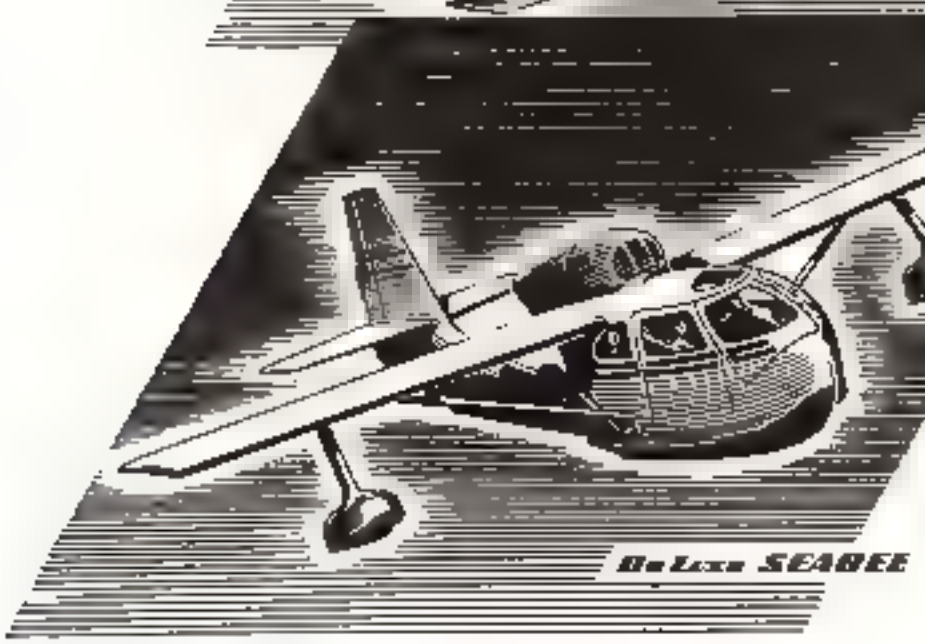
And the Bell System stands prepared. In five busy years, we have added more than 12,500,000 telephones. Many improvements have been made in the quality and speed of service. Our force of highly skilled, experienced men and women has been greatly enlarged—and now numbers more than 600,000.

A nation in a hurry goes by telephone. This country has the best telephone service in the world.

BELL TELEPHONE SYSTEM

Characteristic ...





Thunderjet Rainbow Seabee each of superb individual qualities yet with that unmistakable rugged family trait of the famous P-47 Thunderbolt, bred into Republic planes since inception. ℄ into an era of Peace that will brook no further endangering the jet-propelled Republic Thunderjet fastest of all. ℄ into an era of stratosphere flight inherently Republic the Rainbow a revolutionary transport with cruising speeds of over 400 miles per hour ℄ into an era of independence still inherently Republic the Seabee, all-metal four-place amphibian brings adventure that starts from field or stream. It is truly Republic's era a heritage of the finest.

REPUBLIC AVIATION CORPORATION FARMINGDALE L. I. N. Y.

REPUBLIC AVIATION

Makers of the Mighty Thunderbolt · Thunderjet · Rainbow · Seabee

Even this cloud has a silver lining

... how atomic energy is helping conquer disease

Today, the whole world has reason to hope . . .

To hope that atomic energy will be a powerful force for good... one of mankind's greatest blessings.

Already the silver lining of the atomic mushroom cloud is beginning to show through. In several ways! Just think, for example, of what this new force has done, to date, to expand production of radioisotopes . . . atomic materials used by doctors to track down and treat disease.

Of themselves, isotopes . . . special forms of elements like iodine, phosphorus, cobalt . . . aren't much help to medicine.

But put iodine into an atomic pile, and you get an irradiated isotope. Swallowed and used as a tracer, radioiodine helps doctors diagnose improper functioning of the thyroid gland. And used in larger doses, it helps treat hyperthyroidism

Do the same thing with cobalt, and you get a radioisotope that's a substitute for radium. It's much cheaper, though. Much more plentiful, too.

Until the day of the chain reactor, there just weren't enough radioisotopes to go around. So you can thank atomic energy for these medically invaluable radioelements.

You can also thank Inco Nickel for bearing a hand in this powerful, new attack on disease.

It takes highly corrosive fluorine gas, you see, to produce an intermediate chemical used in the production of certain types of fuel for atomic piles.

And it takes corrosion-resisting Nickel to handle fluorine. For this destructive gas burns water, dissolves glass, crumbles stone, ignites asbestos and steel.

Through its conquest of fluorine, corrosion-resisting Nickel has helped mankind take a giant step ahead in its conquest of disease.

For all its great usefulness to man, however, Inco Nickel is rarely seen. It's usually intermixed . . that is, alloyed . . with other metals to make them more corrosion-resistant, or stronger, or more heat-resistant.

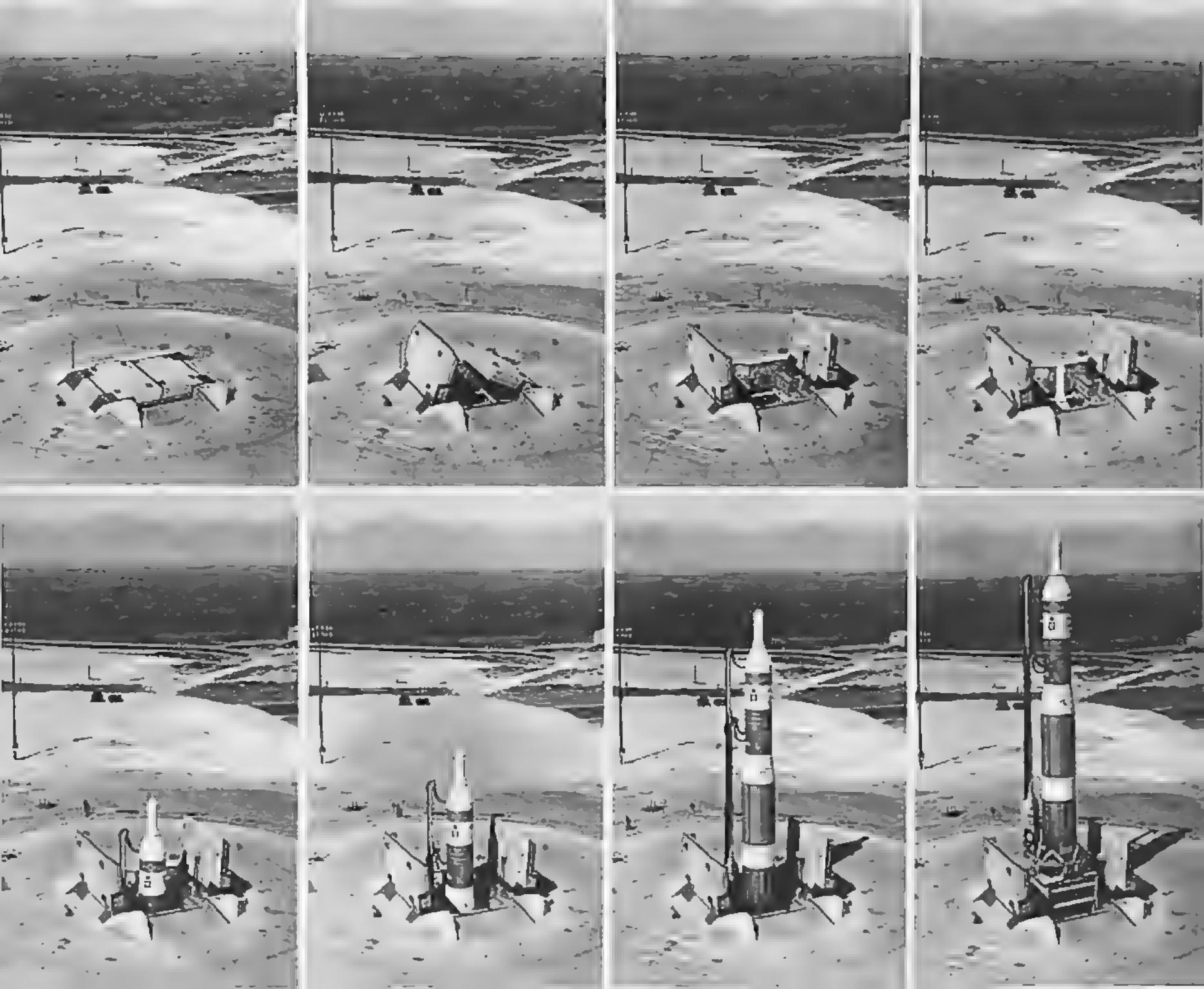
In the alloying, Inco Nickel's identity is generally lost That's why it is called "Your Unseen Friend."

You and "Your Unseen Friend": *Morning, noon and night, Inco Nickel is always with you -helping to make your life easier brighter, more pleasant, more worthwhile Just how? "The Romance of Nickel," an interesting booklet, tells you. Send for your free copy Write The International Nickel Company, Inc., Dept 51c, New York 5, N Y.*

C 1954 T I N Co

Inco Nickel... Your Unseen Friend

The INTERNATIONAL NICKEL COMPANY, Inc.

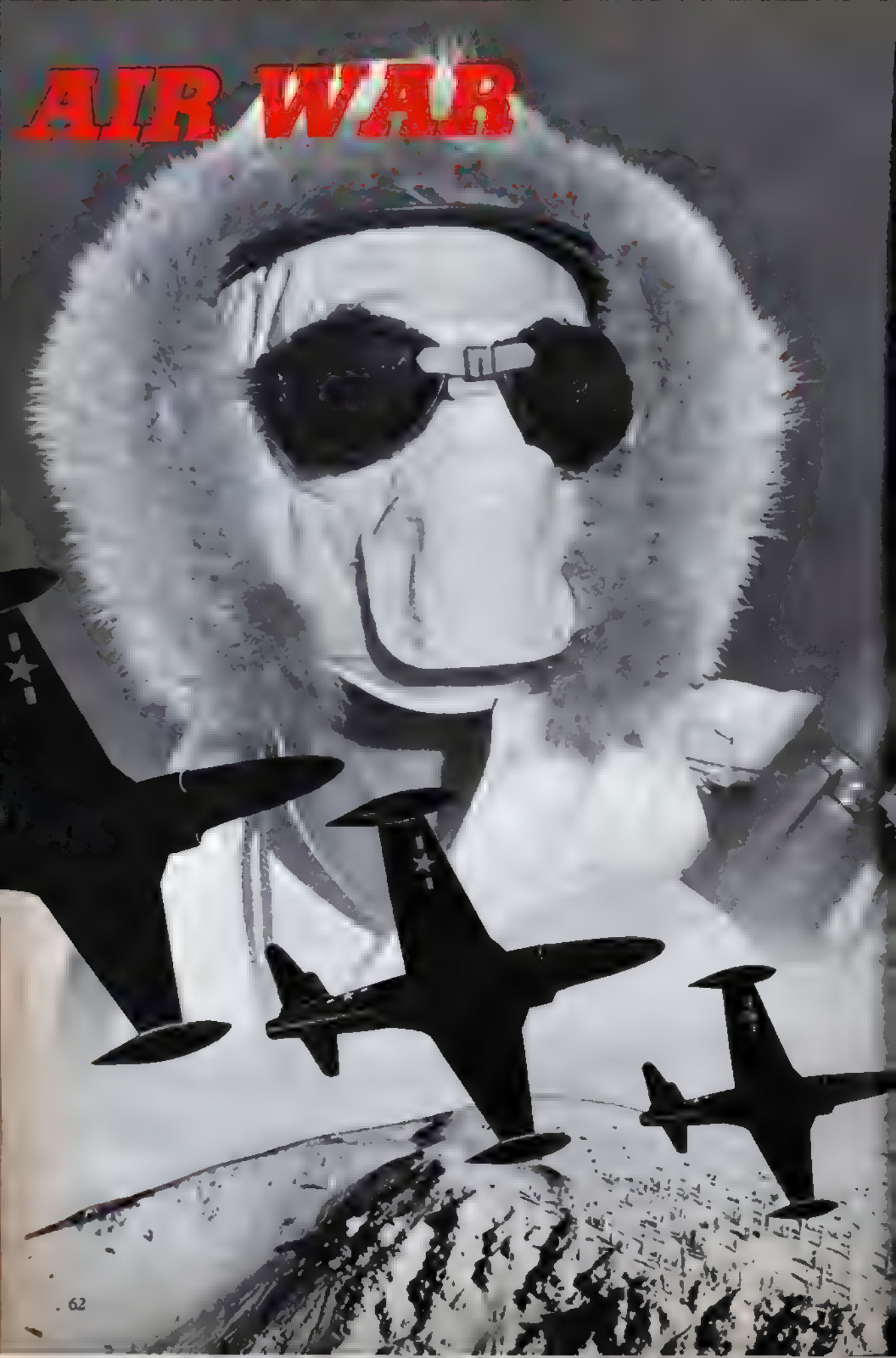


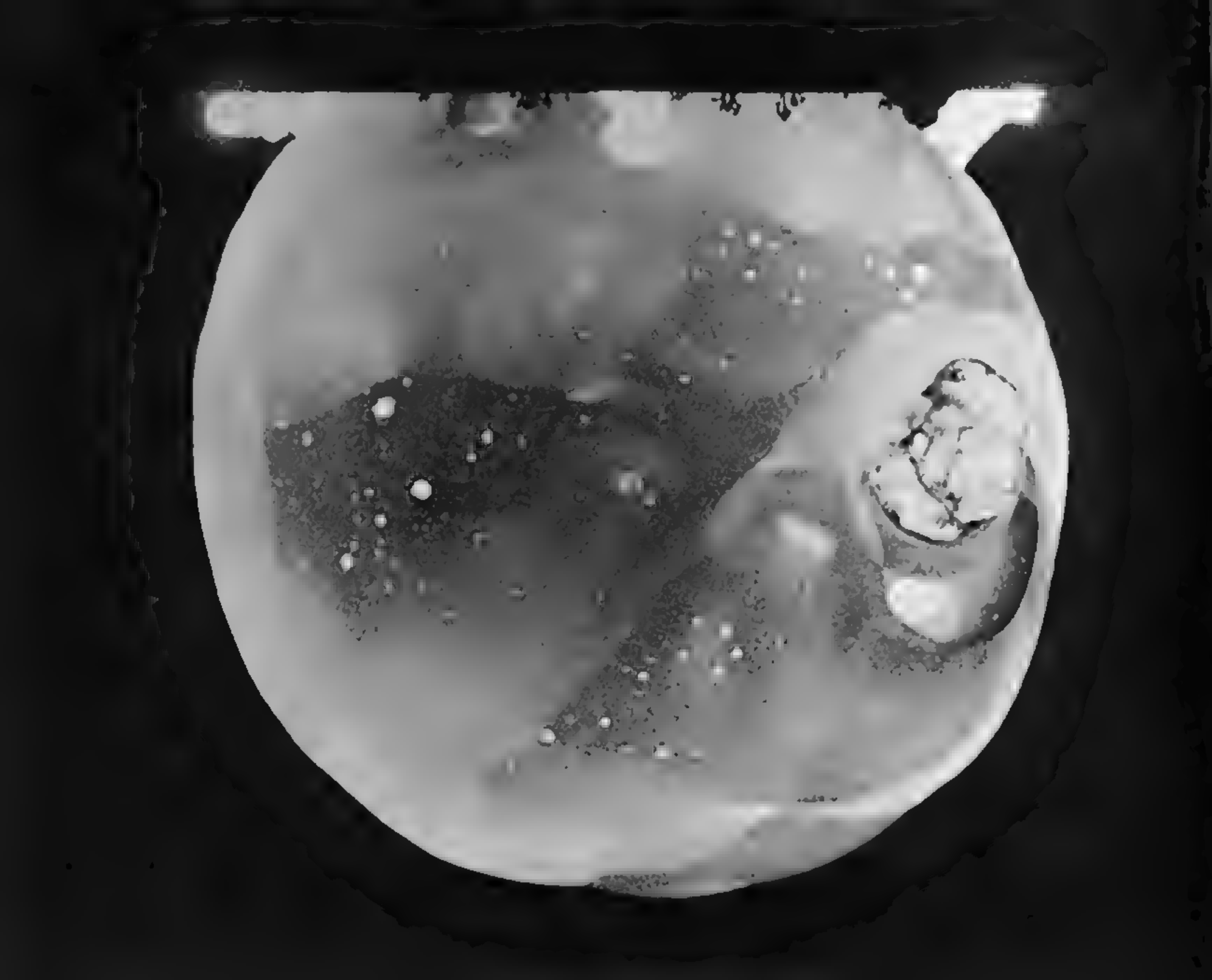
TELEPHONE NEWS

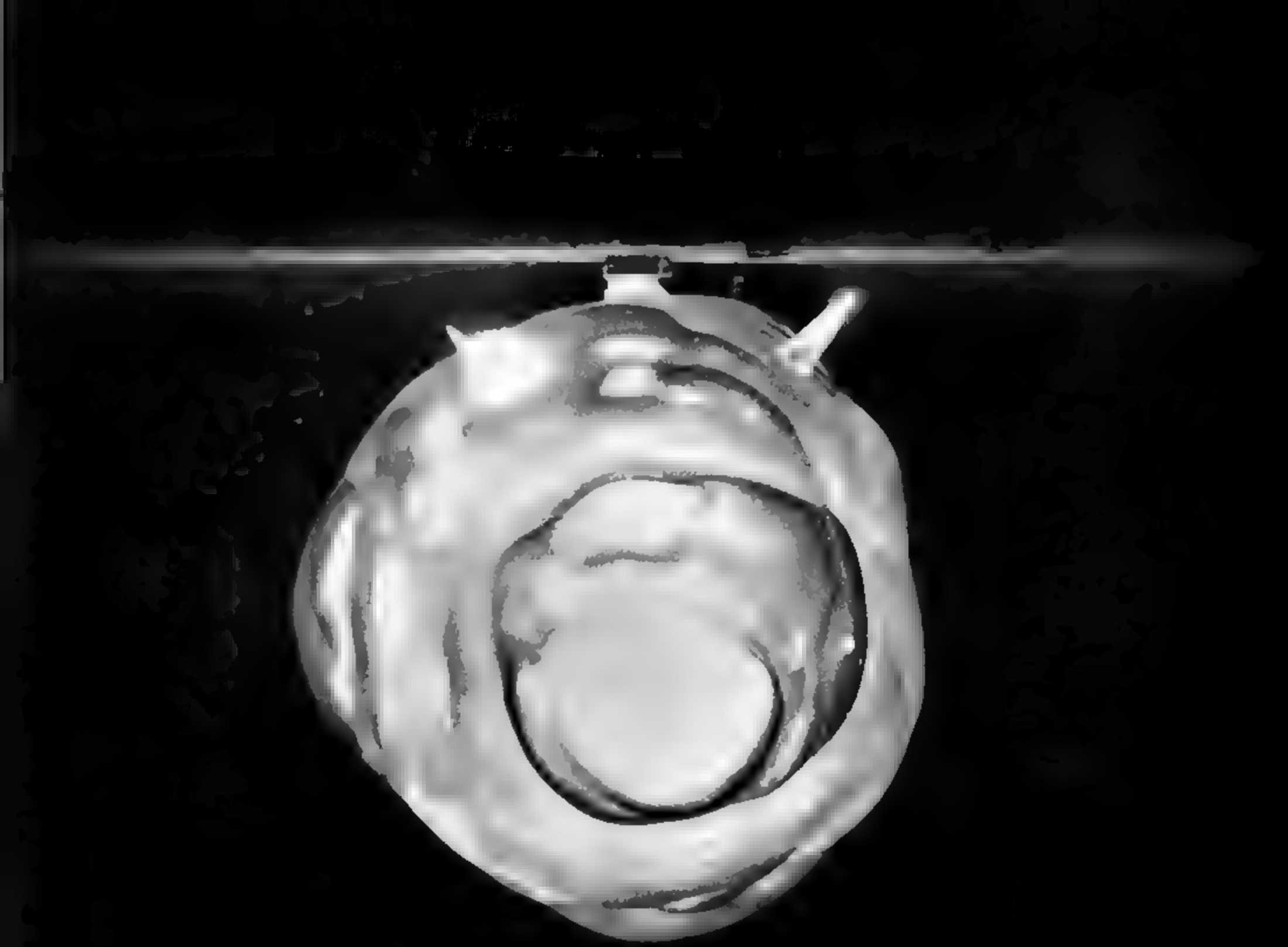
OCTOBER 1962

"PEACEFUL PERSUADER"— TITAN I

(story inside)

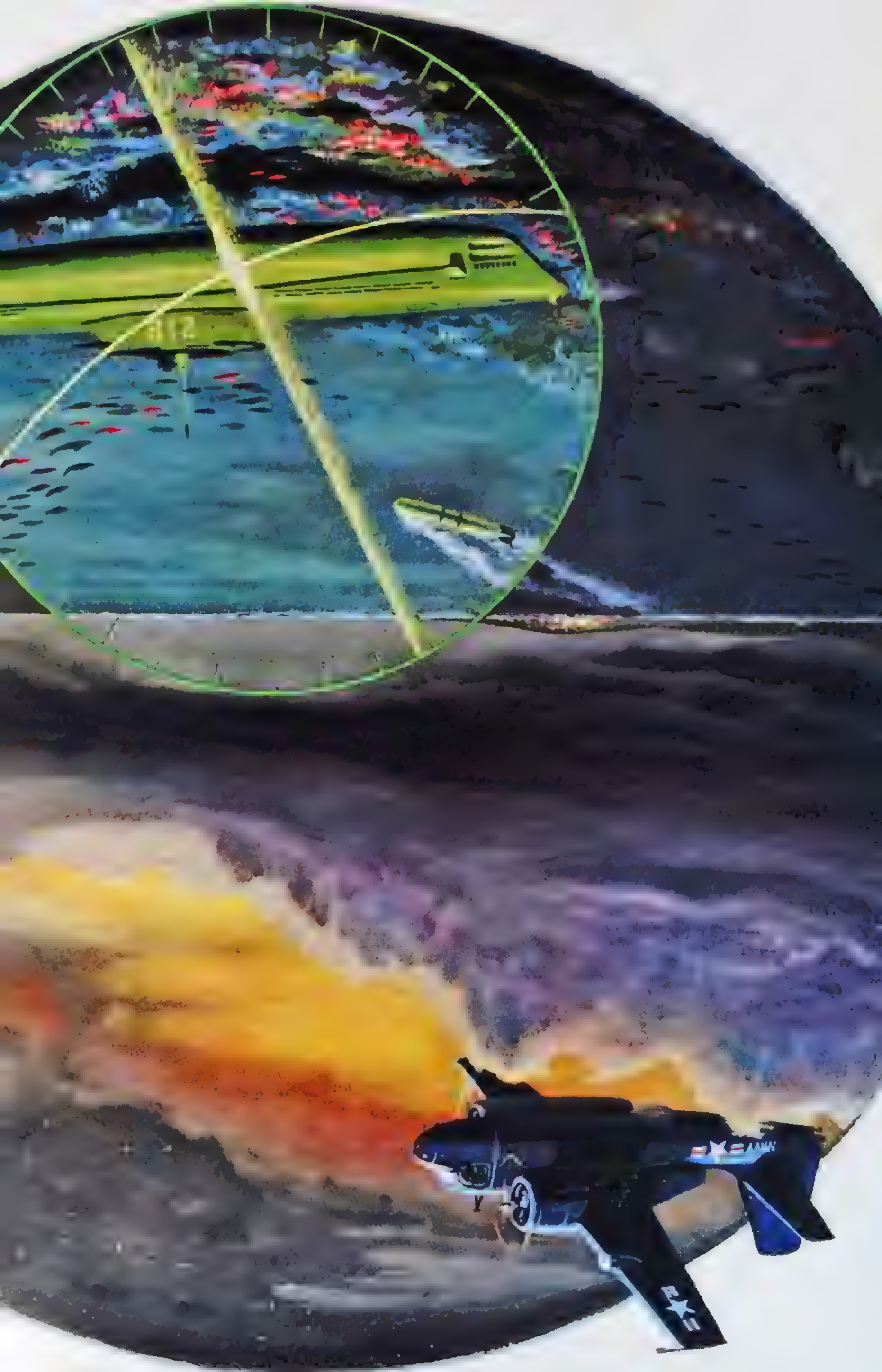

AIR WAR





U.S. AIR FORCE
FH-102
40102

BEAUTIOUS BUTCH II



"We're working for defense, too!"

SO THAT THE PENNSYLVANIA RAILROAD IS READY TO MEET ANY DEMAND, ANY EMERGENCY . . .

WHILE industry makes ready for whatever defense production program the Nation may require, the Pennsylvania Railroad is making ready for any transportation job that industry . . . or the Nation . . . may call on us to do.

Gaining momentum since 1946, the Pennsylvania Railroad's half billion dollar equipment program to insure an adequate car supply, with locomotives and supporting facilities to provide good transportation service, is nearing completion.

The Pennsylvania's 54,000 shopmen are working to keep all transportation equipment fit. Besides building new cars they have rehabilitated 20,000 existing freight cars and will put another 14,000 in new-car condition this year.

Car builders are busy on the biggest single order of its kind in railroad history . . . 20,000 new Pennsylvania Railroad freight cars costing $114 million. More than 7,000 have been built and put to work. The others are coming along at the rate of 1,250 or more a month. These are in addition to more than 5,000 new cars built in the Pennsylvania's shops in the past three years.

More than 1,000 new Diesel-electric locomotives costing $212 million have been ordered. Nearly all are now in service.

In every possible way steps have been taken to make sure that equipment and all other facilities are ample and ready for any demand or emergency.

PENNSYLVANIA RAILROAD

Where Quality Means Performance
and Performance Means Safety
FOOTE BROS.
Better Power Transmission Through Better Gears
FOOTE BROS GEAR AND MACHINE CORPORATION
4545 South Western Boulevard, Chicago 7,

From Tokyo to Thule the Air Force meets the Solar Serviceman

WRITE FOR BOOKLET

New brochure describes Solar gas turbines — how they work, advantages they offer to forward-looking industries. Send for a copy today.

GAS TURBINE ENGINES are gaining ever wider use in military service — for airborne generator sets, ground support units and many other applications. Solar Field Servicemen constantly visit Air Force bases and Armed Services evaluation centers establishing training programs and checking installations. Solar's Field Servicemen are a vital part of the team that has produced the trouble-free record of Solar gas turbines.

Solar builds both the Mars 50 hp and the Jupiter 500 hp gas turbine engines. The Mars is now in use on the Lockheed C-121C Douglas C-124C, Convair C-131B and the Boeing KC-97 tanker. The Jupiter is being produced as a compressor pack and in variable and constant speed versions for other applications.

The proven dependability of Solar gas turbines is the result of nearly three decades of experience in engineering and fabricating precision products of alloy steels for severe service. Can this experience help you solve a complex engineering or manufacturing problem? For information write Dept. C-75, Solar Aircraft Company, San Diego 12, Calif.

SOLAR
AIRCRAFT COMPANY
SAN DIEGO DES MOINES

ENGINEERS WANTED *Unlimited opportunities in Solar's expanding gas turbine program! Write today, giving experience.*

DESIGNERS, DEVELOPERS AND MANUFACTURERS • GAS TURBINES • AIRCRAFT AND MISSILE COMPONENTS • BELLOWS • CONTROLS • COATINGS • METAL ALLOY PRODUCTS

Parachute supply drop in training maneuvers. Colors of chutes identify types of supplies

...To Protect the Supplies that Protect Us !

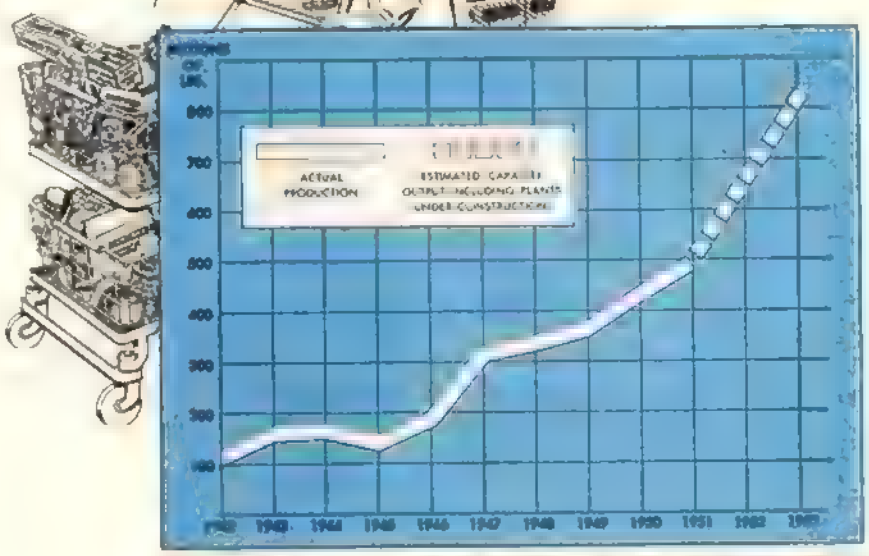
A big air drop is a spectacular demonstration of *aluminum foil packaging.* Rations, medical supplies and a vast variety of items must be protected against moisture, cold, heat and damaging light rays. Guns and many aircraft and tank parts must be wrapped to defy rust...though ever more parts are now made of rustproof aluminum. Miles of foil are needed in addition to the tons of aluminum required for planes, pontoon bridges, PT-boats and other vital equipment.

The civilian uses of aluminum multiply in the same amazing way. More and more manufacturers want to join the parade of brilliant, color-printed foil packages that sell themselves on America's supermarket shelves. More women look for more of their own pure aluminum foil, the original and genuine Reynolds Wrap. And the demand grows for aluminum parts in automobiles and appliances, for aluminum roofing, siding, gutters, windows, reflective insulation.

Military needs come first, but the goal of today's production expansion is more aluminum for civilian use, too. We face a double job: fighting shortages and inflation while we fight aggression. Reynolds is working at that double job full time, full speed.

Reynolds Metals Company, General Sales Office, Louisville 1, Kentucky.

America's market basket, most wonderful in the world, gleams with the brilliance of *quality-protective* Reynolds Aluminum Foil



The expanding primary aluminum production of Reynolds Metals Company—a historic chapter in the company's 33 years of continuing growth.

Defense needs limit Reynolds Wrap ...Return Flight Guaranteed!

REYNOLDS ALUMINUM

"The Kate Smith Evening Hour" on Television, Wednesdays — Tallulah Bankhead in "The Big Show" on Radio, Sundays · NBC NETWORKS

The soldier and the flag

May 30th, 1947 — a day of honor and of memory. Deep in the hearts of countless Americans is an abiding gratitude to those men, living and dead, whose sacrifices have guarded our freedom for 170 years.

What picture comes to your mind when you hear the words "American soldier"?

You see a man and a flag. The man may wear knee breeches and carry a flintlock musket — or he may be clad in modern uniform, handling an M-1 rifle. But whatever his period or his story, you recognize him as a free citizen of a free country, with a ballot in some-thing bigger than hands.

The flag stands for that which for his homeland — for its great tradition of liberty and opportunity — for its people, his friends and neighbors. And in their defense he is ready to give his time and energy, his life, if need be.

Your Regular Army is made up of such men — young men who freely volunteer for service in the American way. Until the day comes when all nations find a road to lasting peace, the safety and the strength of the United States are in their able hands.

U. S. ARMY RECRUITING SERVICE

YOUR REGULAR ARMY SERVES THE NATION AND MANKIND IN WAR AND PEACE [illegible]

THE WORLD AROUND US

THE ILLUSTRATED STORY OF THE

NAVY

25¢

CLASSICS PUBLICATION

CONGRESSIONAL MARKET
PRESENTS
THE
EMERGENCY ATTACK
KIT
OUR CI IAN DEFENSE CONTRI-
BUTIO T OMMUNITY TO
BE PL RY STORE ROOM
OF H OR ANY
RES
LIFE

AMERICA
UNDER
SOCIALISM
FACTORY
CLOSED
ONDER
TATE
ITROL

Vought Vocabulary

in′ge·nu′i·ty: *designing a 12-ton missile to fit inside an atomic sub*

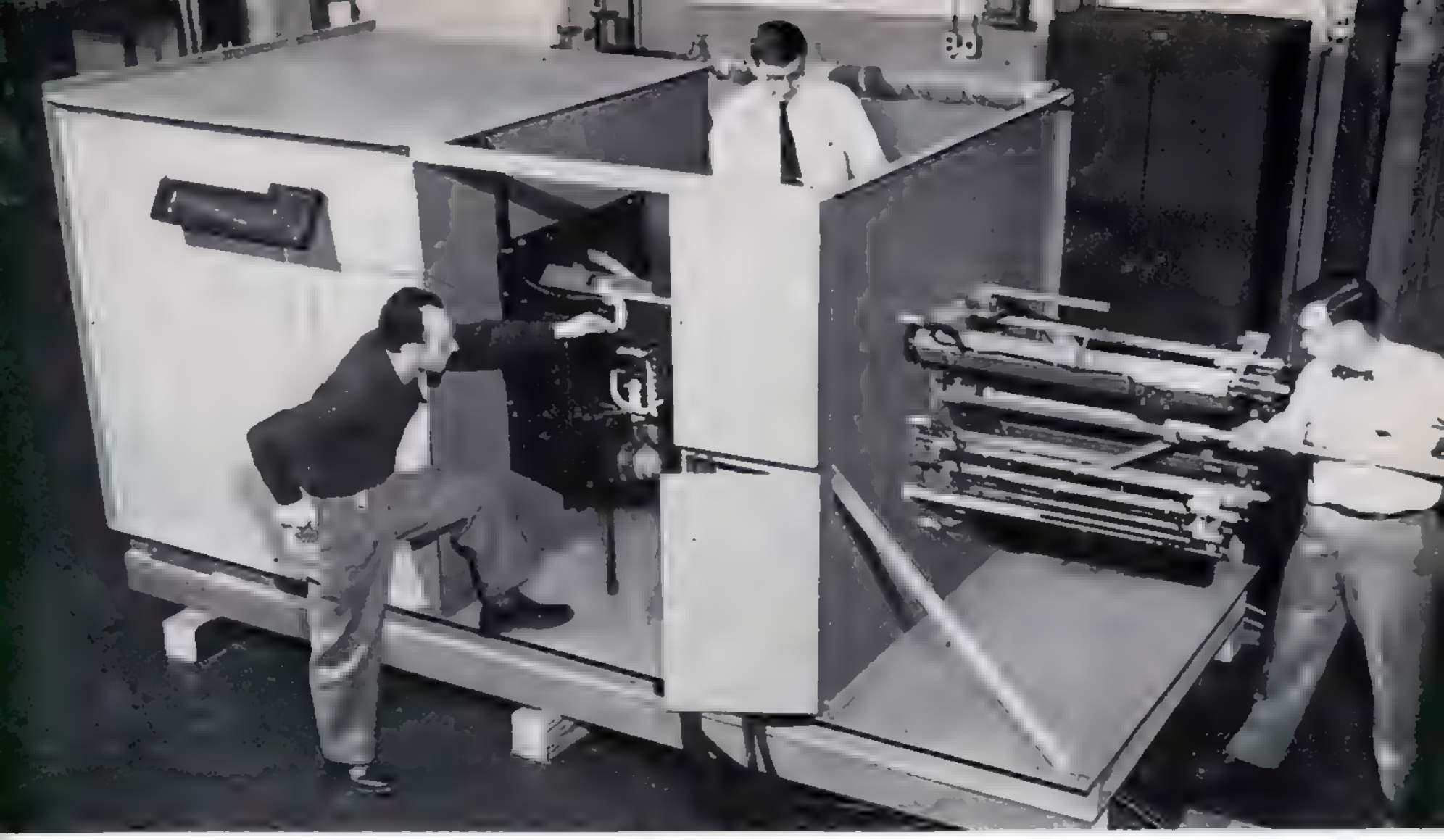
Chance Vought's *Regulus II* missile is twice as long as a city bus. It is crammed with delicate instruments, armed with a nuclear warhead. Yet Vought engineers designed *Regulus II* to serve safely, efficiently aboard the Navy's newest nuclear-driven submarines.

They shock-proofed the missile against underwater blasts. They conditioned it for polar ice, or equatorial heat. They made it — like Vought's smaller Fleet veteran, *Regulus I* — a dependable weapon, accurate from conventional or nuclear subs, from surface ships or highly maneuverable, mobile shore launchers.

Aboard its special, globe-girdling sub, *Regulus II* will move *invisibly* any distance to its launching point. There it can begin a supersonic, long-range strike in minutes. Or it may lurk unseen for months as a patient and ready deterrent.

A chilling prospect for would-be aggressors, this example of Vought ingenuity.

CHANCE VOUGHT AIRCRAFT
INCORPORATED · DALLAS, TEXAS



G-E Nuclear Test Reactor

New G-E 7-point program helps you plan and obtain nuclear research reactor

To help industrial, educational, and research organizations plan and obtain nuclear research reactors quickly, General Electric offers a new seven-point program.

7-point research reactor program

General Electric offers to:

1. **PREPARE REACTOR SPECIFICATIONS,** meeting your specific research requirements
2. **CO-ORDINATE BUILDING STUDY,** assuring proper housing of reactor
3. **PREPARE HAZARDS SUMMARY REPORT** to aid in obtaining approval
4. **MANUFACTURE REACTOR** on schedule
5. **INSTALL REACTOR SYSTEM** at your location
6. **START UP REACTOR,** assuring proper operation
7. **PROVIDE REACTOR SERVICE** to maintain reactor system in proper working order

By providing a large quantity of neutrons at power levels from one watt to 5000 kw, General Electric research reactors can be used as neutron beam generators, for production of radioisotopes, irradiation studies, and nuclear engineering studies. The use of these research reactors will be governed by the Atomic Energy Act of 1954. G.E. will also design and manufacture components for nuclear reactor systems.

Wide range of research reactors offered by G.E.

Nuclear Test Reactor	**30 kw rating (max)**
Water-boiler Reactor	**50 kw rating (max)**
Swimming Pool Reactor	**1000 kw rating (max)**
Heavy Water Reactor	**5000 kw rating (max)**

FOR SPECIFIC INFORMATION on General Electric's 7-POINT RESEARCH REACTOR PROGRAM, contact your G-E Apparatus Sales Office. Send coupon below for bulletins on nuclear research reactors.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Mail to: General Electric Company, Section 224-6F
Schenectady 5, N. Y.

Please send me these two bulletins:

GEA-6326, G-E Nuclear Research Reactors

GER-1054, Nuclear Reactors for Research

☐ For immediate project ☐ For reference only

Name.....

Position.....

Company.....

City.....State.....

Grumman

A PLOT OF AIR HISTORY

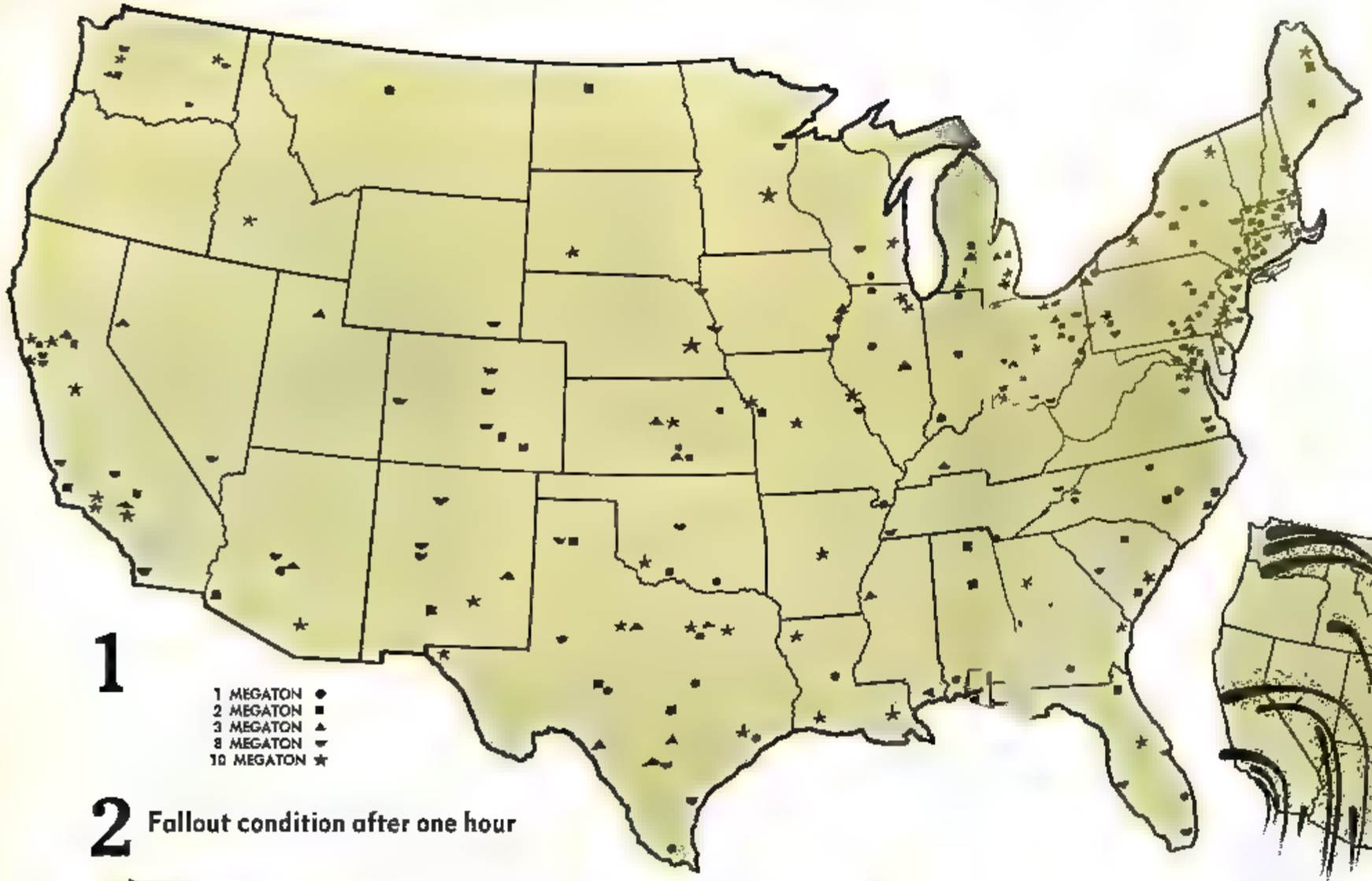
The U. S. Navy tracks aircraft on a transparent board as radar reports their positions. Plot the most famous Navy and Marine fighter planes as reported by history, and Grumman aircraft fill the board.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION

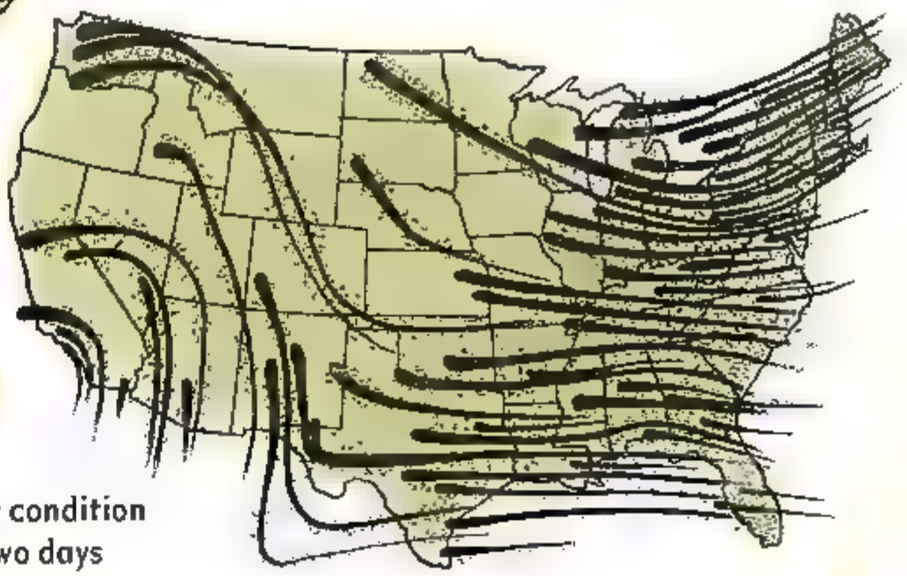
BETHPAGE • LONG ISLAND • NEW YORK

Pattern of Fallout in a Hypothetical War In Which 1400 Megatons Hit U. S. in One Day

NUCLEAR RADIATION is measured in roentgens or rems (roentgen-equivalent-mammal). One rem effects living tissue the same degree as does one roentgen of X ray. Two hundred rem in one day will cause nausea in half of any group, few would die. All would be sick, half would die within 30 days after 450 rem. A 600-rem dose would kill most of any exposed in hours. In the hypothetical attack described, instant radiation up to 700 rem two miles from each 10-megaton burst, and 15 miles from 1-megaton bursts were recorded. One hour after attack some 10 percent of country lay under fallout drizzle exceeding 3000 roentgens per hour in some places. In seven hours, some radioactive cloud patterns from single blasts stretched 150 miles downwind, emitting 450 roentgens per hour at edges, 3000 at the core. After two days, half of nation was blanketed but due to natural decay, intensities were down to maximums of 30 roentgens per hour. Two weeks after attack, only a few pockets exceeding 1 10 roentgen per hour were left.

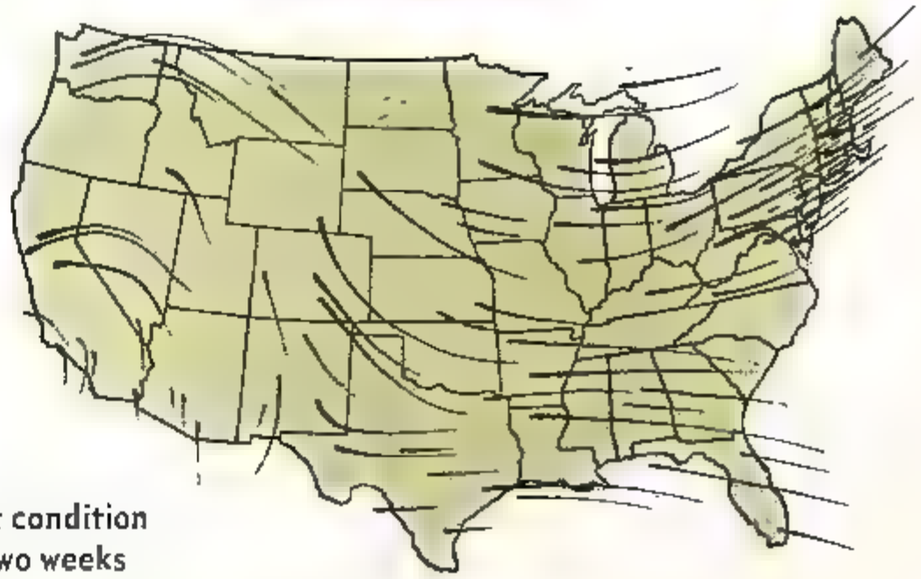


2 Fallout condition after one hour



3 Fallout condition after two days

4 Fallout condition after two weeks



GLASS in the Atomic Age

World's oldest plastic will shield health and machines.

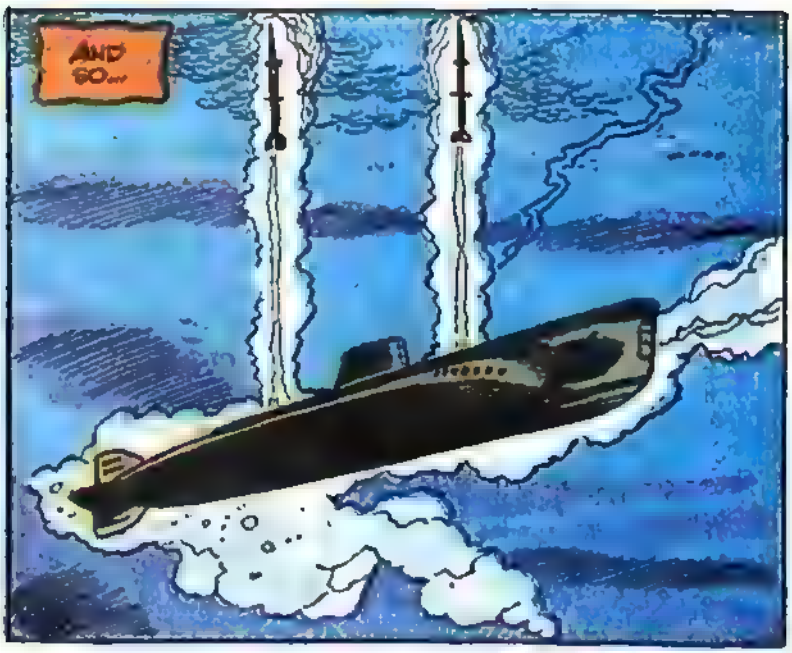
Here a soldier of some unwanted future day enters an atom-bombed area wearing an artist's concept of uranium-glass clothing and respirator. Even ground under his feet would be a peril, as evidenced by cloudy photo of a key, above. It was made by radioactivity of sand fused in Alamogordo blast.

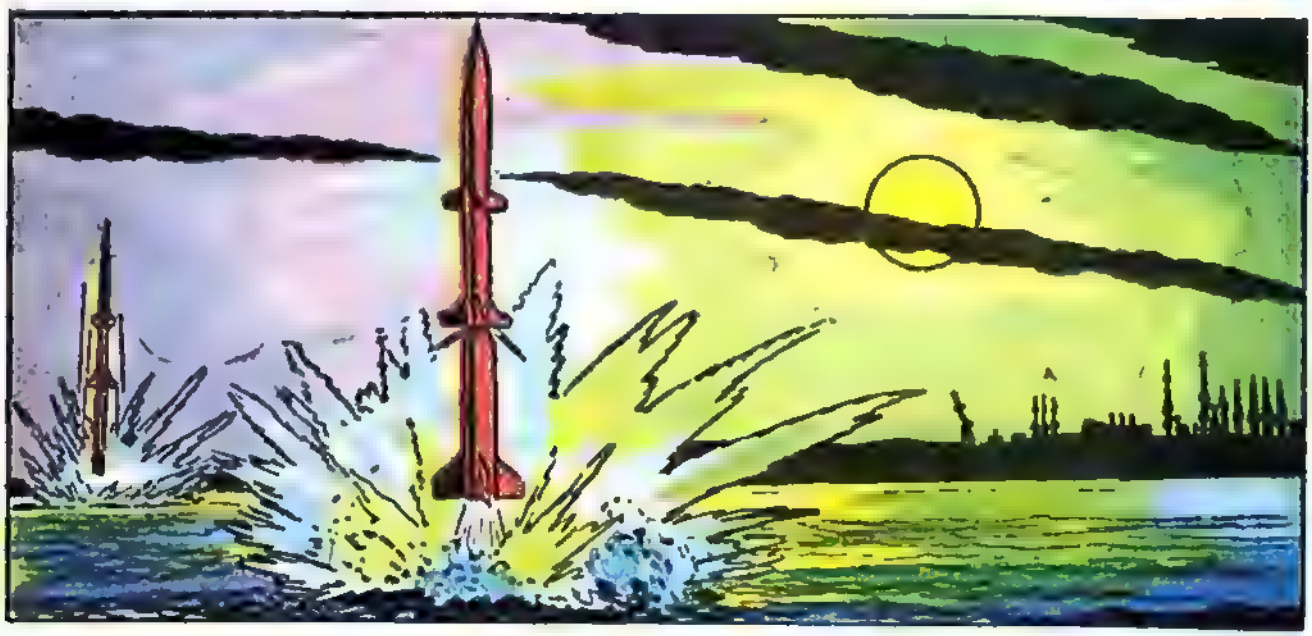
THE PET idea of self-styled camouflage experts early in the war was to build warplanes of glass so that they could not be seen. Glass airplanes never flew, but glass is being used, because of its strength, in airplanes, artificial arms and legs, bullet-proof armor, arctic clothing, boats and canoes, fertilizer, surgical bandages and fillings for teeth. One large glass company now is producing glass in more than 4,000 different forms and has experimental projects covering some 300 more potential uses.

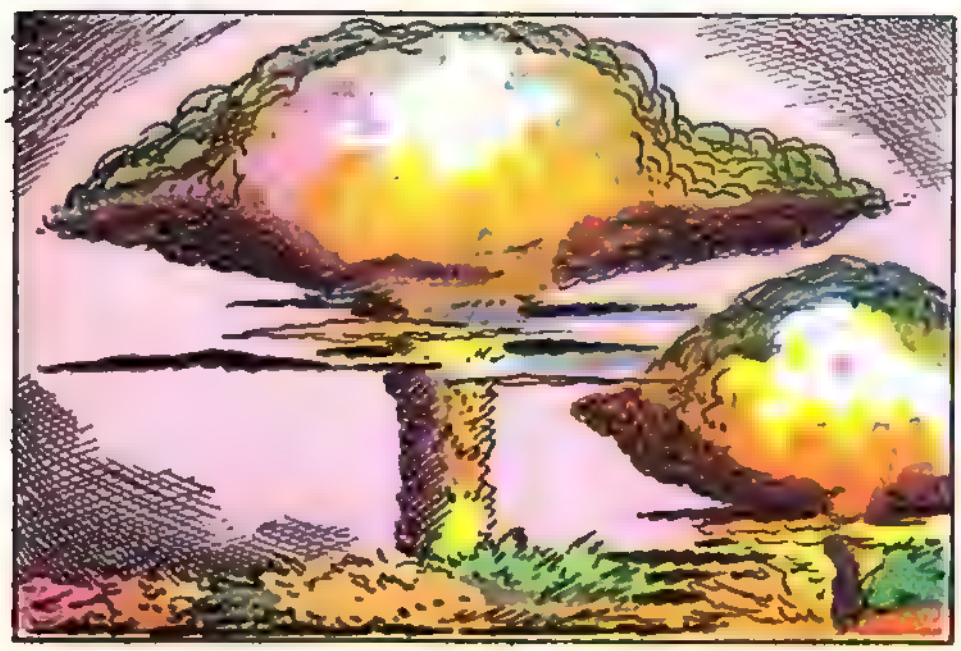
The world has passed progressively through a Stone Age, a Bronze Age and a Steel Age. Glass experts believe that we now are entering a Glass Age.

A major glass-research program at the University of Pittsburgh, directed by Dr. Alexander Silverman, head of the University's chemistry department, is aimed at the solution of some of the age-old secrets of

STARS! MILLIONS OF 'EM!
WELL-- WHAT'RE WE WAITING FOR?


AND SO...





MESSAGE FROM WASHINGTON, SIR-- MISSION ACCOMPLISHED WITH SUCH EXCELLENT RESULTS, THEY SAY... WE MAY SURFACE ANYTIME WE WANT NOW!
The End

FAGO PUBLICATIONS

ATOM-AGE COMBAT

APPROVED BY THE COMICS CODE AUTHORITY

10¢

A FAGO PUBLICATION

PYRAMID BOOKS R-759

THE TRUE AND TERRIBLE STORY OF THE MEN WHO ENDURED AND DEFIED THE MOST DIABOLICAL RED TORTURE

BRAINWASHING

EDWARD HUNTER

The war book you will never forget

"A fascinating document." —*Chicago Tribune*

"Put your *X there!*"

"Ever have nightmares?

"I don't, often. But I sure had one last night! Wasn't my usual one, being chased by a lion and falling off a cliff. In *this* dream it was Election Day. I was at the polls, kidding with some of the boys I knew . . . but they weren't kidding back. They looked sort of worried or scared or something.

"Anyway, I got my ballot, stepped into the voting booth and pulled the curtain. I wet the end of the pencil . . . to make my X's big and black. *Then the nightmare part began.*

"A tough-looking soldier stepped into the booth. He put his finger on the ballot and said, *'Put your X* THERE! *And* THERE . . . *and* THERE . . .' None of the names I'd picked, either. He had a big black gun pointing right at me.

"That was last night. Today, all day, I've been thinking about it. I'd known that was how some elections got settled in other places. But it never occurred to me before how lucky I was to be a citizen of *this* country. *Here* I vote according to my conscience, not a gun. And I do other things the way I please . . . like going to church, or picking out my own kind of job down at the Republic plant. Try that where there's no freedom!

"That's it . . . *Freedom!* We've got all the Freedom in the world. But, honestly now, do we *really* appreciate it? Do *you?* I admit I've done *my* share of griping . . . probably never will get over that habit.

"But, with Freedom-grabbers at work here as well as abroad, I want to be sure on Election Day that we're *all alone* in that voting booth. With nobody to tell us, *'Put your X* THERE!' No sir!"

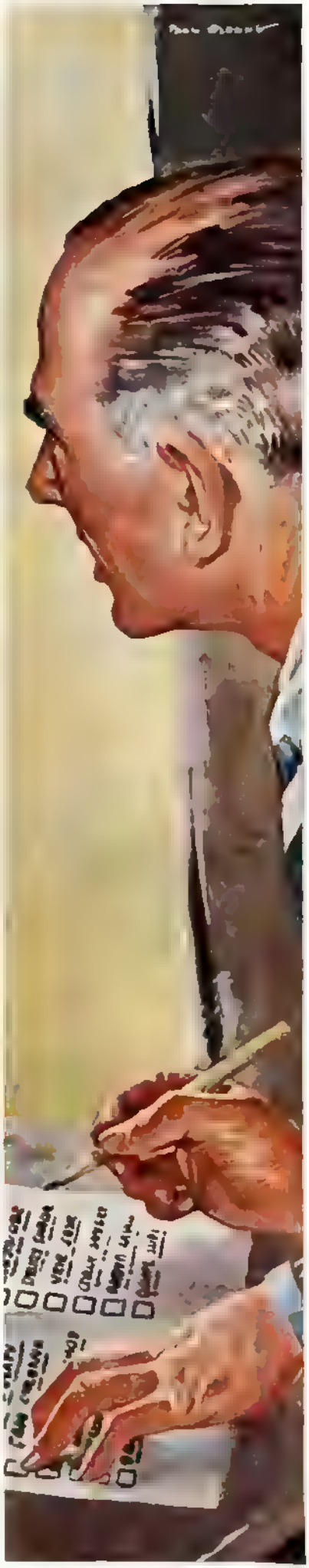
REPUBLIC STEEL

Republic Building, Cleveland 1, Ohio

Republic* BECAME *strong in a strong and free America. Republic can* REMAIN *strong only in an America that remains strong and free . . . an America whose many thriving industries have brought the world's highest living standards to her people. *And in serving Industry, Republic also serves America.* Take, for example, the Food Processing Industry. Here untold millions of pounds of food are processed, refrigerated, packed, canned and frozen for the American table. And here Republic's gleaming Enduro Stainless Steel can be found on the job . . . in vats, cookers, sterilizers, mixers, coolers, to name but a very few . . . guarding faithfully the food your family eats.

• • •

{ For a reprint of this advertisement write Dept. A, Republic Steel, Cleveland 1, Ohio }



"That's right.... *church closed"*

"No, this didn't happen in a communist country.

"Happened right here in town last Sunday. We'd just gotten home late the night before from a motor trip and, of course, hadn't heard what happened.

"Been going to that church about fifteen years, so you can imagine what a shock it was when Officer Povey stopped us at the door. *'That's right,'* he told us, *'I said church closed.'*"

"Then he explained. There'd been a small fire inside the church the day before and he was there to shoo the folks over to the Guild Hall where services would be held temporarily. Mary and I looked at each other ... then grinned. We'd *both* had the same crazy idea that the State had taken over the churches.

That night Bill and Edna Johnson dropped in for TV. We told them what happened at the church. And about the crazy idea we had. But Bill asked, *was* it so crazy? Then he pointed out that it *had* happened in other countries. So we all got talking real serious. Never *did* turn on the television that night.

"All week I've had it on my mind . . . *suppose we had no Freedom here?* Suppose the State took over religion . . . and the press . . . and professions, like music and medicine and art and such? Suppose they took over industry . . . and made me work where I didn't want to? Suppose the State took over our house on Elm Street? And suppose, on election day, we were given our choice of *one* candidate?

"Maybe I don't run my life perfectly . . . but I sure wouldn't want the State to run it for me! Y'know... every Thanksgiving Day, we give thanks for the good things we have . . . all of which add up to Freedom, when you come to think of it. *So why shouldn't we all be just as thankful the other 364 days, too?*"

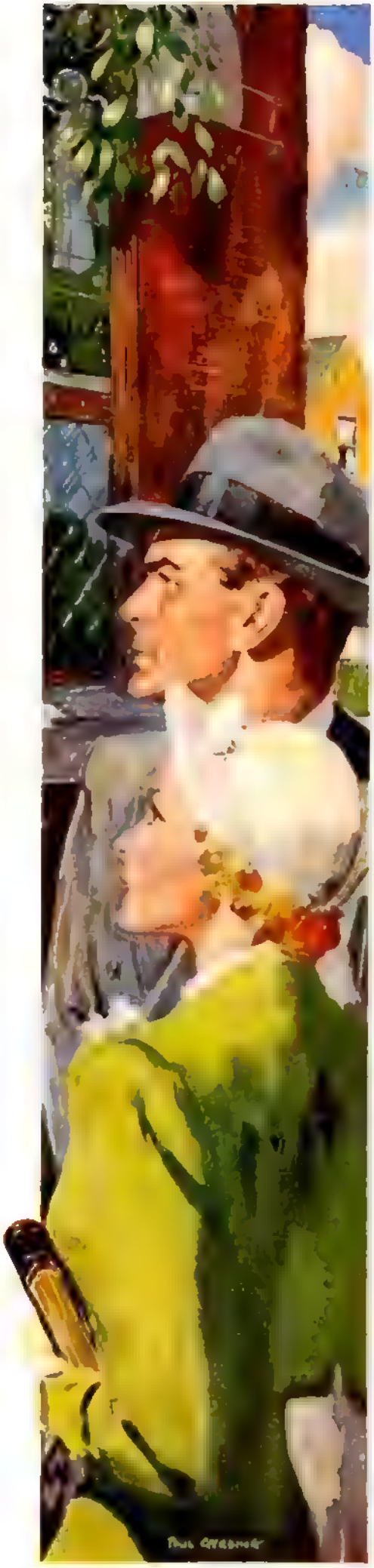
REPUBLIC STEEL

Republic Building, Cleveland 1, Ohio

Republic BECAME strong in a strong and free America. Republic can REMAIN strong only in an America that remains strong and free . . . an America whose vast Agricultural Industry is unsurpassed. *And through Agriculture, Republic serves America.* Republic produces quality steels for *all* industries . . . and much of it can be found in thousands of farm tools and machines for field, pasture and farmstead. Thus, Republic works closely with the farmer to help keep America the best fed nation on earth.

• • •

For a reprint of this advertisement, write Republic Steel, Cleveland 1, Ohio



Will the desperate men in the Kremlin attack? By 1954 Russia will be strong enough to do so. That is why our former Air Force chief states:

We Are in PERIL!

GEN. HOYT S. VANDENBERG

ON MARCH 6, 1953, I appeared before the Armed Forces Subcommittee of the Appropriations Committee of the House of Representatives. The purpose of my appearance there was to introduce the Air Force budget for the fiscal year 1954. The budget introduced at that time was designed to continue the buildup toward the 143-wing air force goal which had been fixed by the Joint Chiefs of Staff, approved by the Department of Defense, and sanctioned by congressional action.

The statement I made before the House committee included a detailed review of

CONVAIR'S F-106 DELTA DARTS – ALL-WEATHER INTERCEPTORS

SILHOUETTES OF STRENGTH

Now entering full-scale operational status with the U.S.A.F. Air Defense Command, Convair's F-106 is the world's fastest and highest-flying all-weather interceptor. These "silhouettes of strength," latest and most spectacular of the delta-shaped interceptors pioneered by Convair, a Division of General Dynamics Corporation, are playing a vital part in helping the Air Defense Command in its mission of protecting your home and country!

CONVAIR

A DIVISION OF GENERAL DYNAMICS CORPORATION

INTERCEPTOR SUPREME

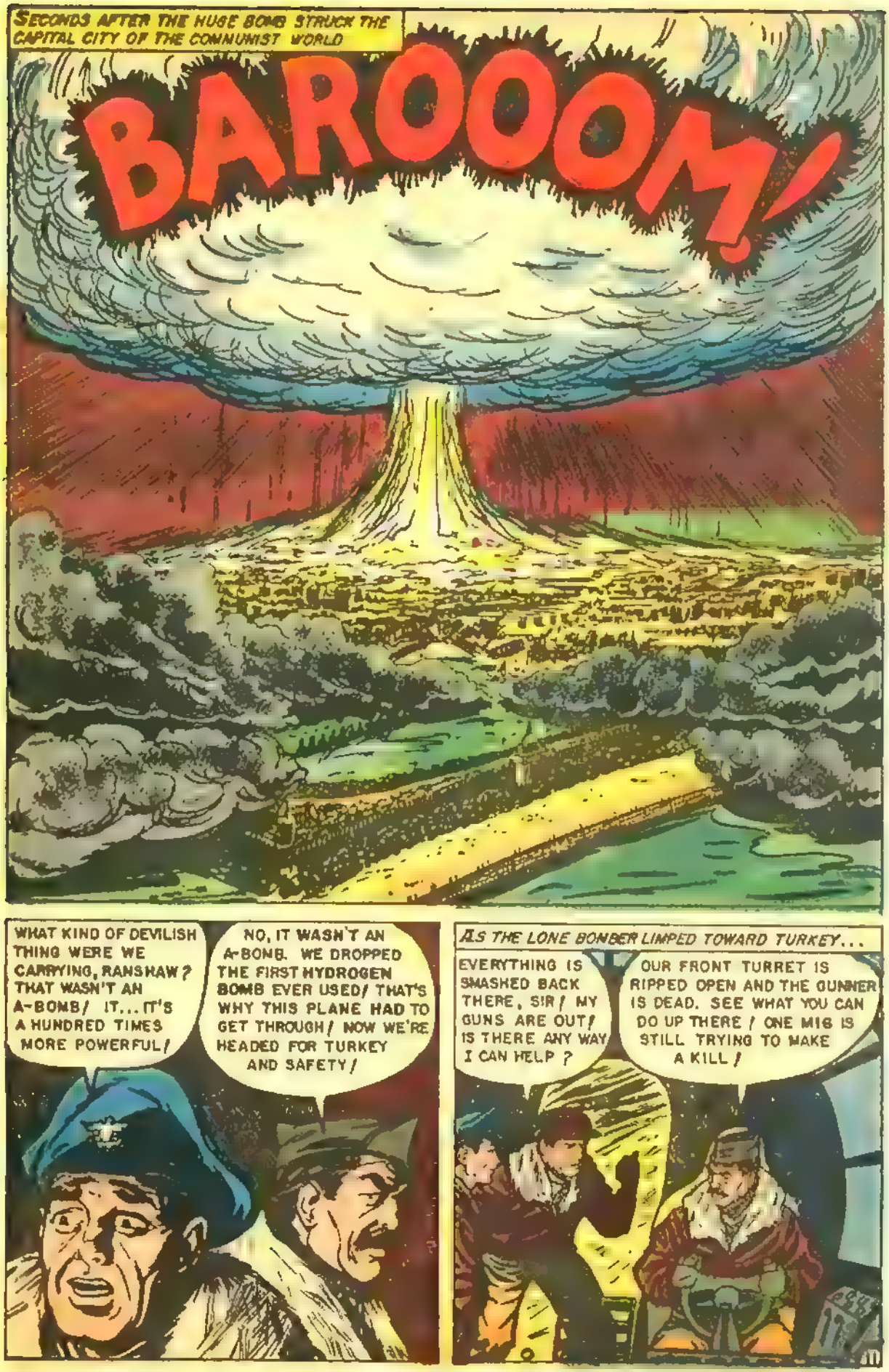
The latest production version of the incomparable Lightning fighter –the Royal Air Force's interceptor supreme—is soon also to join the Royal Saudi Air Force.

Today's Lightning—developed against a background of continuous RAF service—is virtually a completely new weapons system and is the equal of any aircraft in the world. A continuous development programme is exploiting the immense potential of the Lightning basic design and the great and growing volume of service experience.

LIGHTNING

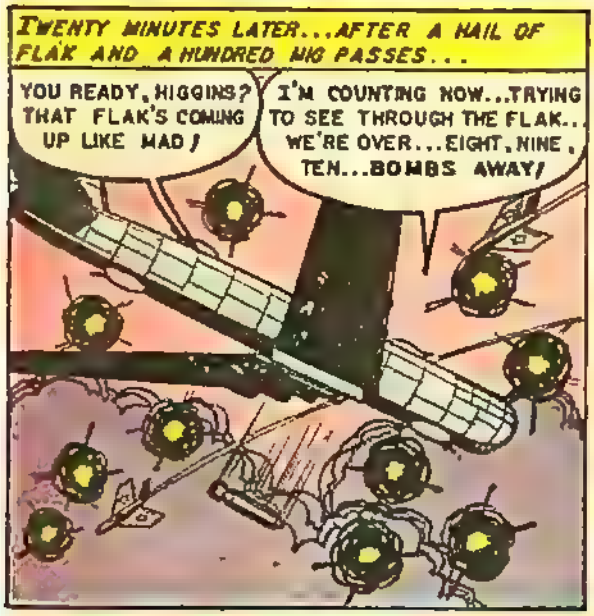
BRITISH AIRCRAFT CORPORATION

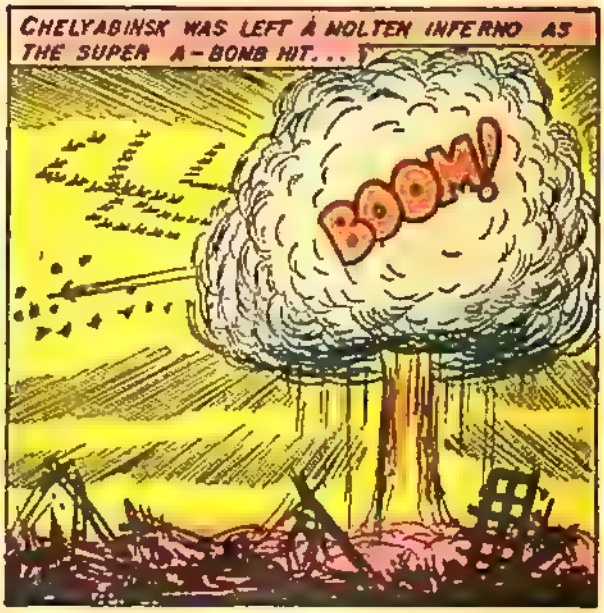
100 PALL MALL LONDON SW1


SECONDS AFTER THE HUGE BOMB STRUCK THE CAPITAL CITY OF THE COMMUNIST WORLD
BAROOOM!
WHAT KIND OF DEVILISH THING WERE WE CARRYING, RANSHAW? THAT WASN'T AN A-BOMB! IT... IT'S A HUNDRED TIMES MORE POWERFUL!
NO, IT WASN'T AN A-BOMB. WE DROPPED THE FIRST HYDROGEN BOMB EVER USED! THAT'S WHY THIS PLANE HAD TO GET THROUGH! NOW WE'RE HEADED FOR TURKEY AND SAFETY!
AS THE LONE BOMBER LIMPED TOWARD TURKEY...
EVERYTHING IS SMASHED BACK THERE, SIR! MY GUNS ARE OUT! IS THERE ANY WAY I CAN HELP?
OUR FRONT TURRET IS RIPPED OPEN AND THE GUNNER IS DEAD. SEE WHAT YOU CAN DO UP THERE! ONE MIG IS STILL TRYING TO MAKE A KILL!

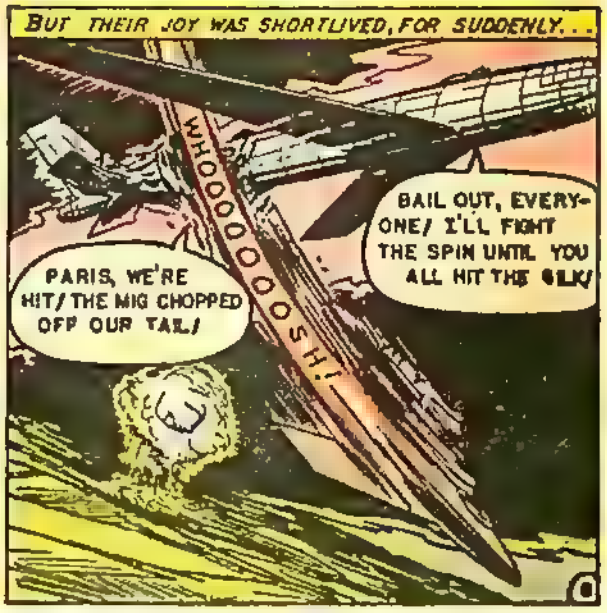
THE SHRUNKEN ARMADA ROARED ON TOWARD THE NEXT TARGET, CHELYABINSK, ANOTHER RED A-BOMB STORAGE DEPOT...
WE'VE LOST HALF OUR PLANES, STEVE, AND THE MIGS ARE COMING UP AGAIN!
WE CAN'T TURN AROUND AND GO HOME NOW! RANSHAW TO PARIS! YOUR TARGET COMES UP IN TWENTY MINUTES! GET SET!

ABOARD CAPTAIN SAM PARIS' PLANE...
THAT RANSHAW MUST BE A COLD-BLOODED FISH, SENDING US IN LIKE THIS WITHOUT COVER! WHEN I THINK OF RICK SLOANE... BRRRR!
SHUT UP AND SET THAT AUTO-PILOT! RANSHAW'S DOING A JOB! HE CAN'T AFFORD TO GET SENTIMENTAL!


TWENTY MINUTES LATER...AFTER A HAIL OF FLAK AND A HUNDRED MIG PASSES...
YOU READY, HIGGINS? THAT FLAK'S COMING UP LIKE MAD!
I'M COUNTING NOW...TRYING TO SEE THROUGH THE FLAK.. WE'RE OVER...EIGHT, NINE, TEN...BOMBS AWAY!


CHELYABINSK WAS LEFT A MOLTEN INFERNO AS THE SUPER A-BOMB HIT...
BOOM!

WILD ELATION FOLLOWED ABOARD PARIS' BOMBER...
WE DID IT! WE DID IT! WE REALLY CLOBBERED THEM!
RIGHT ON THE BUTTON, HIGGINS! WE MUST HAVE HIT THE MAIN STORAGE DEPOT!


BUT THEIR JOY WAS SHORTLIVED, FOR SUDDENLY...
WHOOOOOOOSH!
PARIS, WE'RE HIT! THE MIG CHOPPED OFF OUR TAIL!
BAIL OUT, EVERYONE! I'LL FIGHT THE SPIN UNTIL YOU ALL HIT THE SILK!

ONLY A STRONG AMERICA CAN PREVENT

DEC.
10c

ATOMIC WAR!

ACE

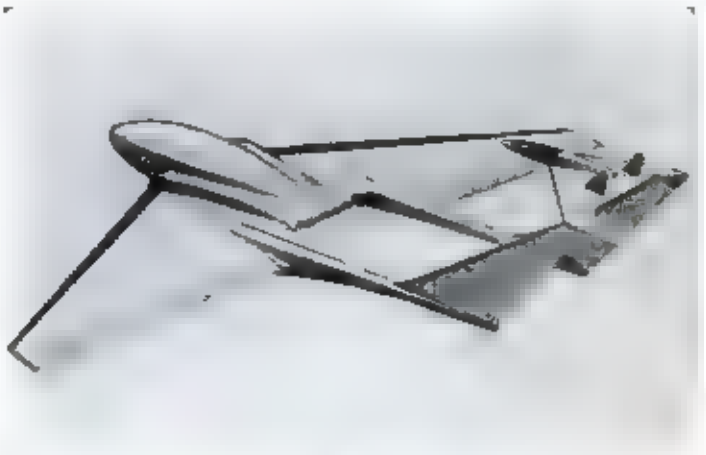
pilot can handle, so the wing must be large, or have unusually high lift capacity. And since there is no loss of fuel weight in flight, we will need a more rugged landing gear, with perhaps many additional wheels to distribute the load on runways.

Question: Might this be so difficult that this would become a seaplane?

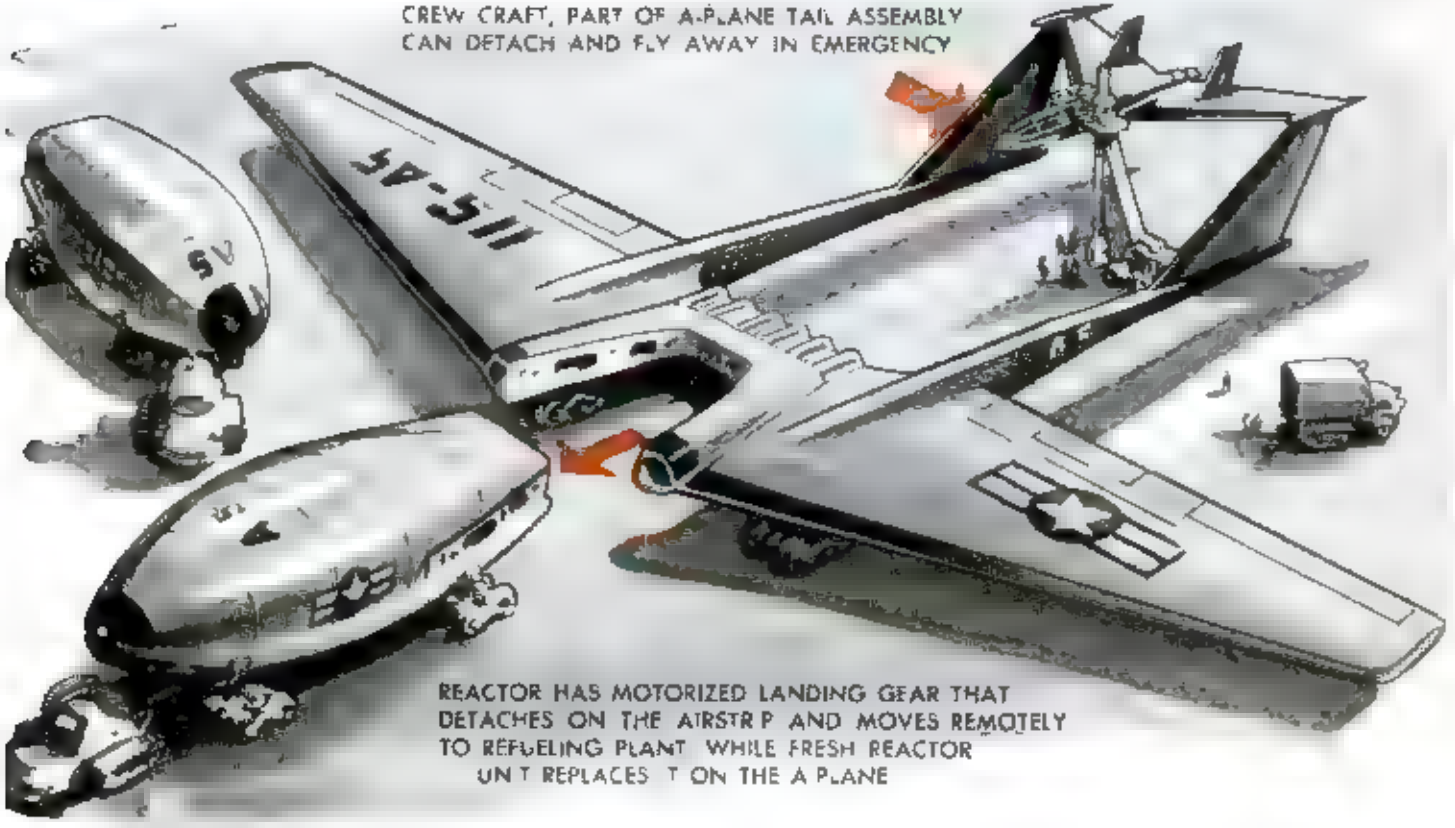
Mr. Teichmann: Yes. In a seaplane we would distribute the load over a larger area, which would permit a slightly lighter structural weight for the aircraft itself. And we wouldn't have to worry about

fighters to a combat theater and then stays aloft to refuel the fighters.

(Continued to page 258)



Artist's sketch of an A-plane conceived by Ohlinger of Northrop Aircraft (also on cover in full color) shows one solution for replacing the atomic reactor


CREW CRAFT, PART OF A-PLANE TAIL ASSEMBLY
CAN DETACH AND FLY AWAY IN EMERGENCY
REACTOR HAS MOTORIZED LANDING GEAR THAT
DETACHES ON THE AIRSTRIP AND MOVES REMOTELY
TO REFUELING PLANT WHILE FRESH REACTOR
UNIT REPLACES IT ON THE A-PLANE

APRIL 1957 35 CENTS

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UNDERSTAND IT

A PM Round Table Conference Looks at

THE ATOMIC AIRPLANE

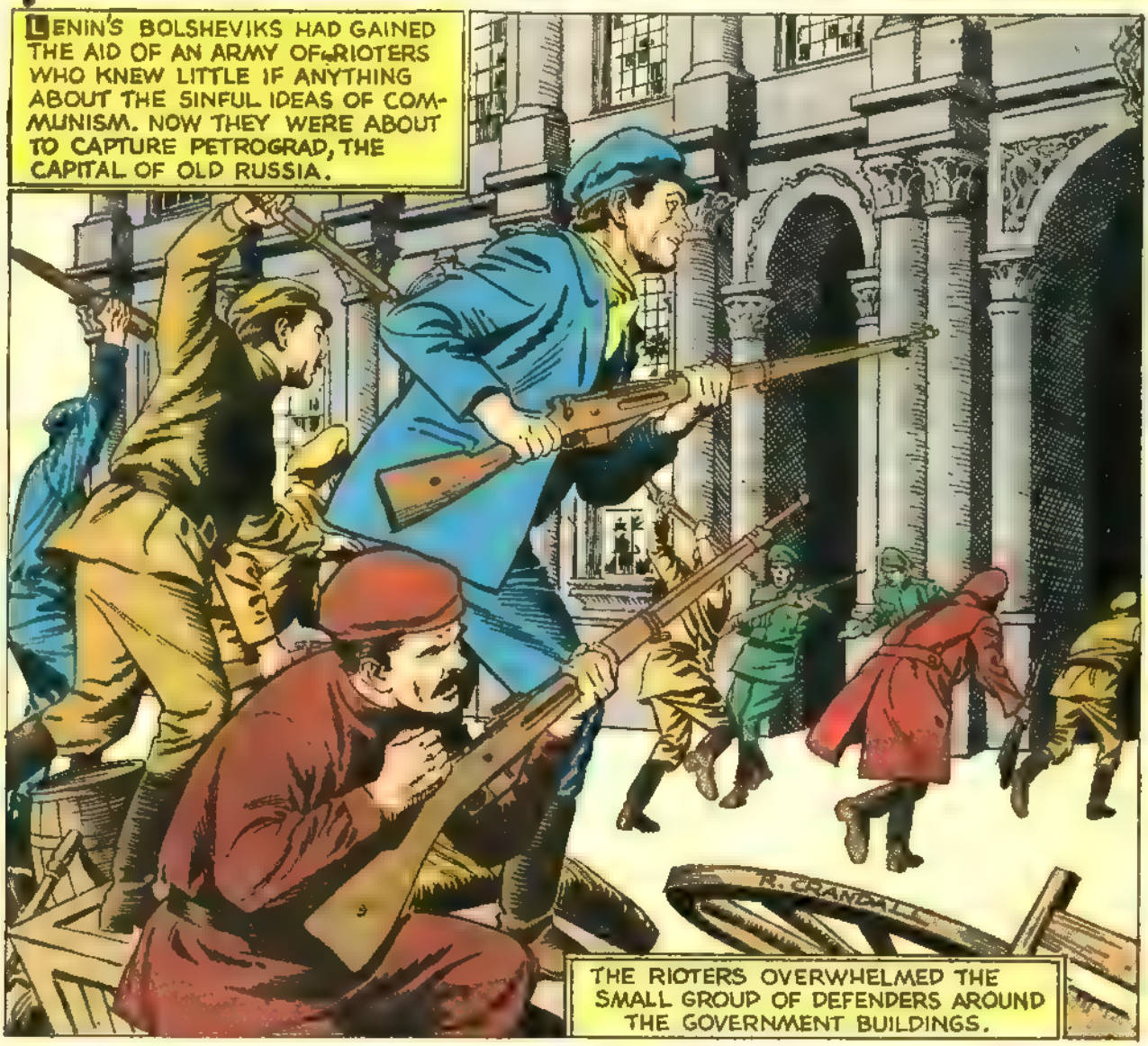
—page 100

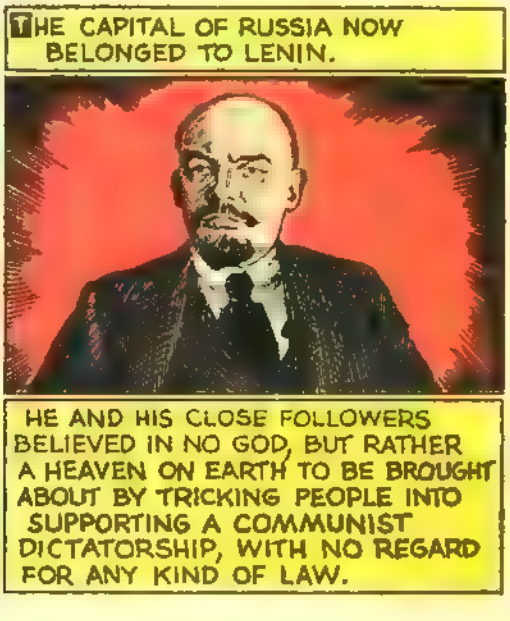
Read!

WHAT OWNERS SAY ABOUT '57 CHEVROLET

FS-059

THIS GODLESS COMMUNISM


LENIN'S BOLSHEVIKS HAD GAINED THE AID OF AN ARMY OF RIOTERS WHO KNEW LITTLE IF ANYTHING ABOUT THE SINFUL IDEAS OF COMMUNISM. NOW THEY WERE ABOUT TO CAPTURE PETROGRAD, THE CAPITAL OF OLD RUSSIA.
THE RIOTERS OVERWHELMED THE SMALL GROUP OF DEFENDERS AROUND THE GOVERNMENT BUILDINGS.


THE CAPITAL OF RUSSIA NOW BELONGED TO LENIN.
HE AND HIS CLOSE FOLLOWERS BELIEVED IN NO GOD, BUT RATHER A HEAVEN ON EARTH TO BE BROUGHT ABOUT BY TRICKING PEOPLE INTO SUPPORTING A COMMUNIST DICTATORSHIP, WITH NO REGARD FOR ANY KIND OF LAW.

12¢
SEPT
NO. 115
APPROVED BY THE COMICS CODE AUTHORITY
DC NATIONAL COMICS

SUPERBOY

Featuring
"The ATOMIC SUPERBOY!"

SUPERBOY, I'M SORRY WE ASKED YOU TO SWALLOW THOSE TWO NEW CHEMICALS SO WE COULD OBSERVE THE REACTION IN YOUR STOMACH. IT'S CAUSED AN ATOMIC EXPLOSION! EVERY TIME YOU BREATHE, YOU WILL EMIT NUCLEAR FIRE!

THE LADY FROM L.U.S.T. #6

TO RUSSIA WITH L.U.S.T.

Rod Gray

CANYON

UTOPIA
ZUKUNFTROMAN
A.J. Merak
Atomversuch Erdball
Fremde Mächte versenken die Erde
60 Pf
Nr. 255

The Hand Behind Tomorrow's Blueprint!

Convair was the first to engineer, build and *fly* the delta wing—the most promising of new aerodynamic designs. Years before the Air Force's XF-92A delta wing flew, Convair research predicted that the triangular configuration would outperform any conventional jet plane. . .and do it in trans-sonic and super-sonic speed ranges...at altitudes beyond sight!

Today Convair is continually at work improving this revolutionary design and even adapting it to water-based planes. Whether pioneering or perfecting, the versatile skills of Convair engineering are present in every stage of the delta wing development... *truly the hand behind tomorrow's blueprint!*

It's all part of engineering that aims at the maximum, the Nth degree of air power... *the Nth Power!*

Convair-Liner – *unequalled for safety, preferred by passengers and pilots more Convair-liners used by more airlines than any postwar plane!*

IN THE AIR IT'S

CONVAIR

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

☆ ☆ CONVAIR IS ADDING ANOTHER 1½ MILLION SQUARE FEET OF FLOOR AREA TO ITS PLANT FACILITIES—MAKING A TOTAL OF MORE THAN 9 MILLION SQUARE FEET DEVOTED TO RESEARCH AND PRODUCTION PROJECTS FOR AIRCRAFT, GUIDED MISSILES AND ELECTRONICS!

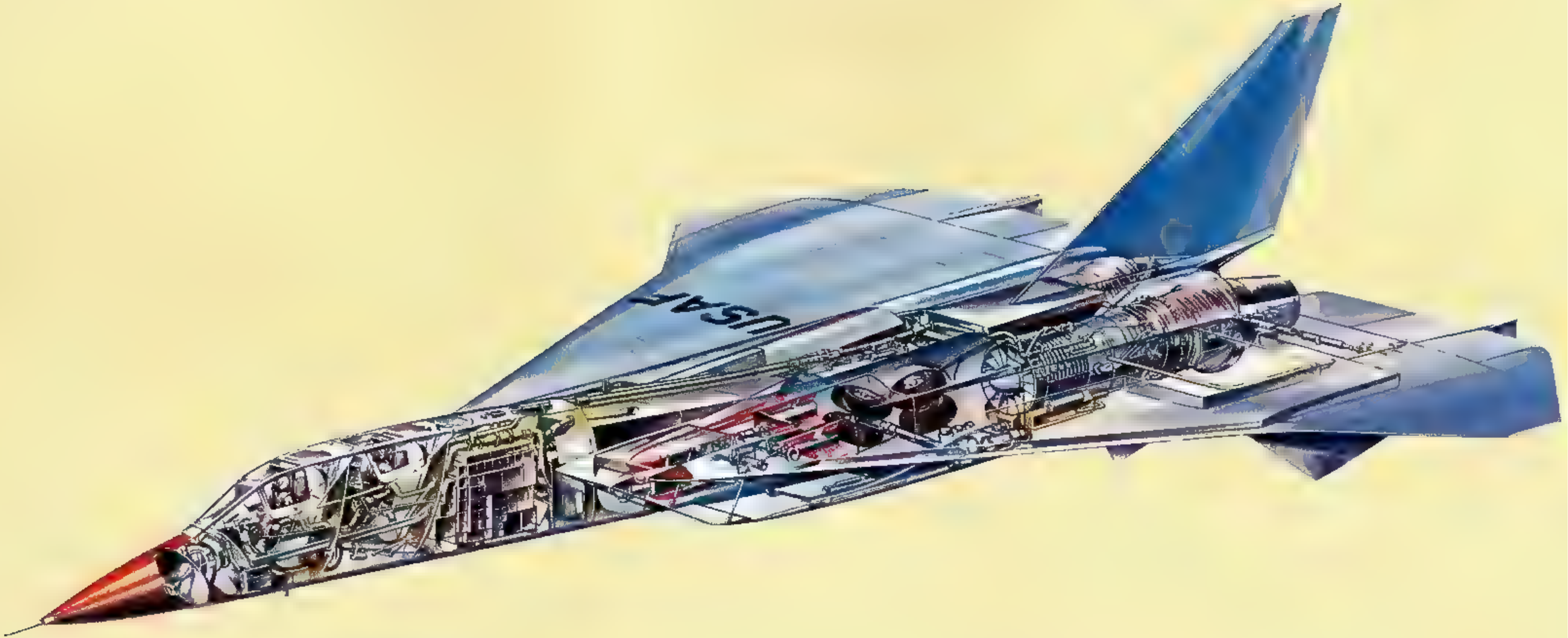
TRICOPTER SKYHOOK

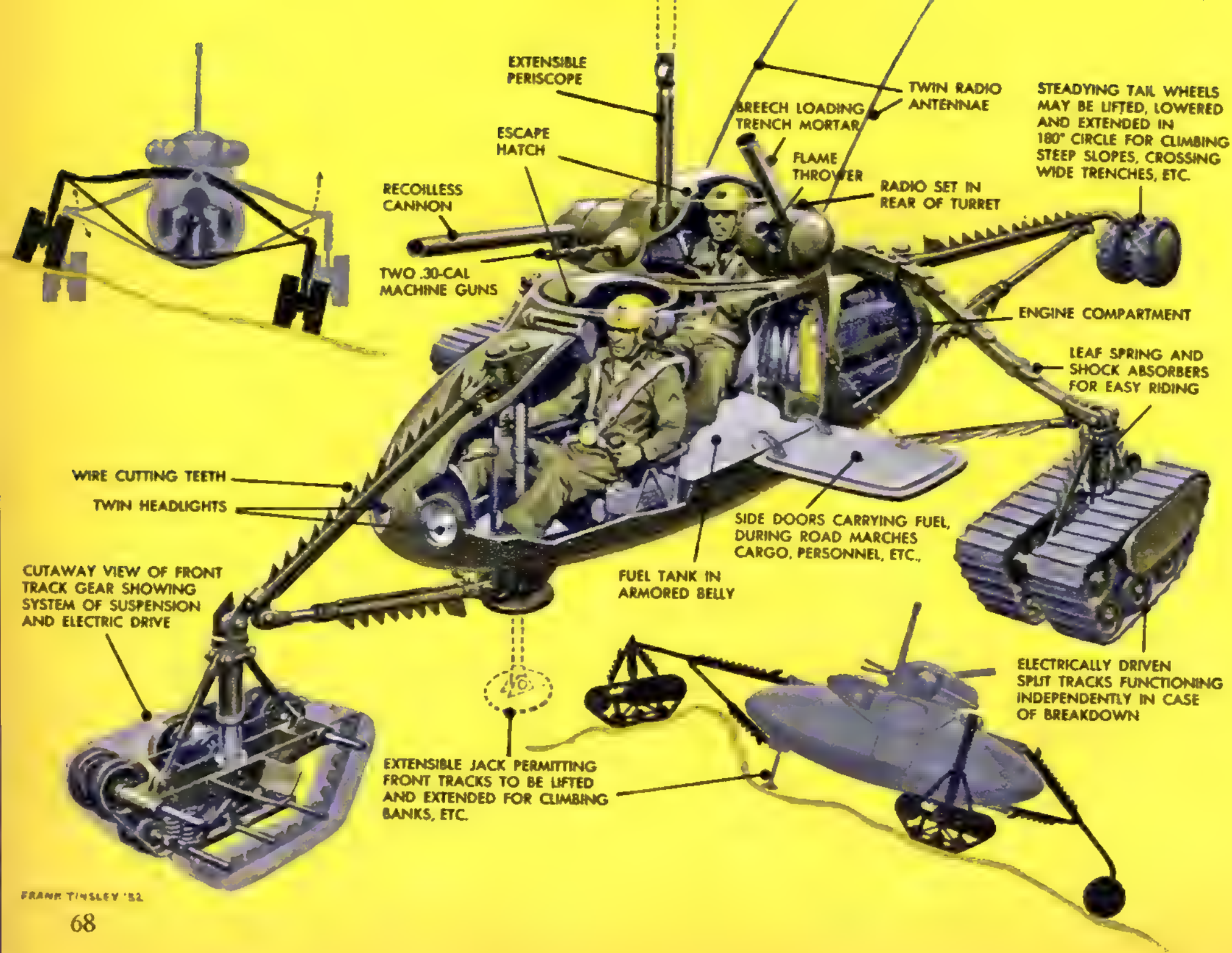
It's as simple as an ox yoke and it serves a very similar purpose.

By Frank Tinsley

WHEN a heavy hauling job comes up the idea has always been "Put in more horses." Now, Raymond A. Young, an ex-Navy aeronautical engineer, has made it possible to harness helicopters in teams. His harness, as uncomplicated as an ox yoke, is a tubular framework that holds the working whirlybirds far enough apart to give them rotor room.

Various adaptations of Young's basic idea may be used. The one illustrated is a tricopter harness consisting of three girders hinged to a central vertical hoist and braced in a rigid triangle by steel cables. Above the outer end of each girder is a universal coupling which attaches to the bottom of a helicopter with a quick release fastening. Each of the machines is separately flown but all follow the commands of a chief pilot, given over interphones. Young's multi-copter harness can pick up bridge sections, ferry vehicles and equipment, emplace artillery in otherwise inaccessible positions—using standard copters instead of expensive specialized equipment. •


USAF


EXTENSIBLE PERISCOPE
TWIN RADIO ANTENNAE
BREECH LOADING TRENCH MORTAR
ESCAPE HATCH
FLAME THROWER
RADIO SET IN REAR OF TURRET
STEADYING TAIL WHEELS MAY BE LIFTED, LOWERED AND EXTENDED IN 180° CIRCLE FOR CLIMBING STEEP SLOPES, CROSSING WIDE TRENCHES, ETC.
RECOILLESS CANNON
TWO .30-CAL MACHINE GUNS
ENGINE COMPARTMENT
LEAF SPRING AND SHOCK ABSORBERS FOR EASY RIDING
WIRE CUTTING TEETH
TWIN HEADLIGHTS
SIDE DOORS CARRYING FUEL, DURING ROAD MARCHES CARGO, PERSONNEL, ETC.,
FUEL TANK IN ARMORED BELLY
CUTAWAY VIEW OF FRONT TRACK GEAR SHOWING SYSTEM OF SUSPENSION AND ELECTRIC DRIVE
ELECTRICALLY DRIVEN SPLIT TRACKS FUNCTIONING INDEPENDENTLY IN CASE OF BREAKDOWN
EXTENSIBLE JACK PERMITTING FRONT TRACKS TO BE LIFTED AND EXTENDED FOR CLIMBING BANKS, ETC.

FRANK TINSLEY '52

ATLAS
BATTLE ACTION

BATTLE ACTION • BATTLE ACTION • BATTLE AC

BATTLE ACTION

APPROVED BY THE COMICS CODE AUTHORITY

ALL NEW STORIES!

AUG.
NO. 24

10¢

"OUR PLATOON IS TRAPPED!"

ATOMIC ENERGY COMMISSION
UNITED STATES OF AMERICA

ACE
DOUBLE NOVEL BOOKS

TWO COMPLETE NOVELS 35c

D-139

ATOM CURTAIN

BETWEEN AMERICA AND THE REST OF THE WORLD ROSE A WALL OF DEATH!

A NOVEL

BY NICK BODDIE WILLIAMS

UTOPIA

ZUKUNFTSROMANE

Große Jubiläumsausgabe

50 Pf 16 Seiten mehr Österreich S 2,50

CLARK DARLTON

100

Finale

THE MOST AMAZING JET STORY TO EVER BLAST THE SCREEN!!

JET ATTACK

JET PROPELLED DAMES!

JET JOCKEYS!

BLAZING EXCITEMENT!

starr ng

JOHN AGAR · AUDREY TOTTER · GREGORY WALCOTT · JAMES DOBSON

LEONARD STRONG · NICKY BLAIR · VICTOR SEN YUNG

Screenplay by ORVILLE H. HAMPTON · From an original story by MARK HANNA

Produced by ALEX GORDON · Directed by EDWARD L. CAHN

AN AMERICAN INTERNATIONAL PICTURE

COPYRIGHT 1958 ...

—58102—

USAF GAR-1 • FALCON AIR-TO-AIR MISSILE • *Hughes Aircraft Co.*

USAF

U.S. AIR FORCE

Here's a city laid low, but it can rally if its people know how

THIS IS PITTSBURGH—its Golden Triangle in flames and only the steel shells of its skyscrapers standing after the blast and suction of atomic bombs dropped on the great steel mills across the river. The drawing is a conception of the scene some hours after the explosion. The enemy has departed, the mushroom cloud has dissipated. Our planes are on patrol. There would be 80,000 casualties in killed and wounded, half the city's hospitals would be left useless, doctors, nurses, stretcher-bearers, first-aid volunteers would need 250,000 pints of blood for the injured. If New York were the target, 150,000 would be injured, perhaps another 150,000 killed.

Give Yourself a Break

A determined enemy, penetrating our flimsy defenses, could devastate ten other American cities almost simultaneously. That we must be prepared for, but preservation of life in the individual is only incidental to the paramount objective of keeping the factories going so that the nation can get up off the canvas and start swinging. The business of recovery from attack is the business of a civil-defense organization that we are only beginning now to create. The one way for a civilian to give himself a break is to join up now in whatever defense capacity he is fitted for, and to learn the art of self-preservation.

A handbook now being distributed by the Civil Defense Administration estimates that it would take more than 17,000 first-aid workers, organized into 180 stations, to care for the casualties arising from an atomic attack on an average city with a population of 13,000 to the square mile. Such an attack, it is estimated, would kill 40,000 outright. Another 20,000 could be expected to die in five or six weeks.

There would remain 80,000 wounded in need of immediate help. To care for them, it is suggested that first-aid forces be deployed in 57 stations around a ring encircling the average city at intervals of one sixth of a mile, at a distance of a mile and a half from the point of the explosion. Each of those 57 stations, to function on a 24-hour basis, would require two physicians, three nurses, three dentists, two pharmacists, fifteen first-aid workers and nurses' aides, six clerks to keep a record of the patients, and 150 stretcher-bearers.

We've Got to Be Ready

In addition to that, recovery from an attack would involve radiological detection crews to isolate contaminated areas, auxiliary police, at least 40 to each 1000 population, to direct emergency traffic, check looting and prevent mass flight; rescue squads, at least 10 men to each 1000, trained to remove injured from toppled buildings; evacuation teams, debris-clearing crews, auxiliary fire fighters, engineer repair squads, chauffeurs, communications men and volunteers in a dozen other categories. But if we are not prepared to meet catastrophe until it happens, no such forces will be on hand when the time of need comes.

END

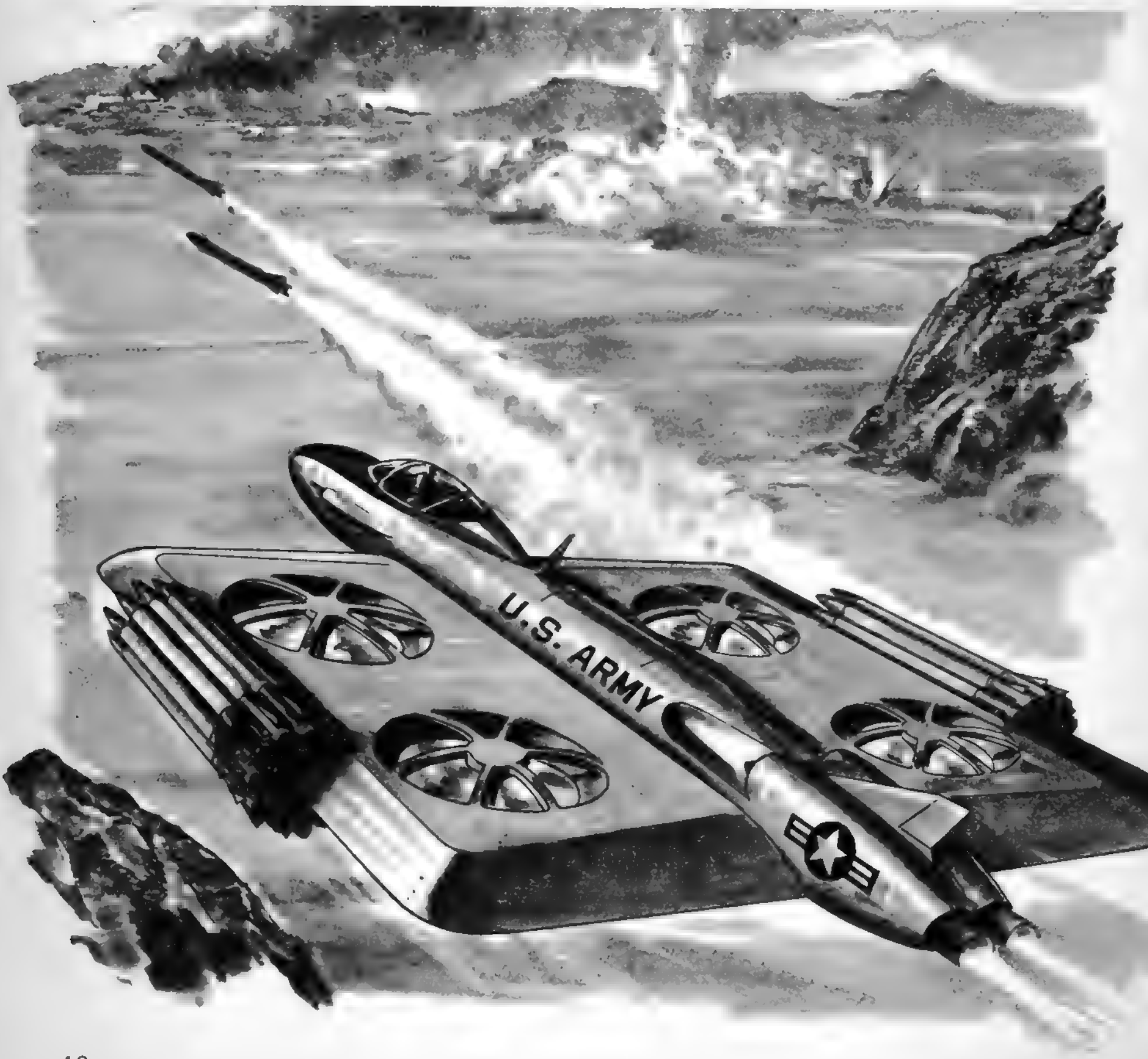
Drawing by ROLF KLEP

IN WHAT NEW WAYS WILL ROCKETS BE USED?

TO BE sure that atomic battlefields are swiftly occupied after a detonation, new, fast-moving weapons must be devised.

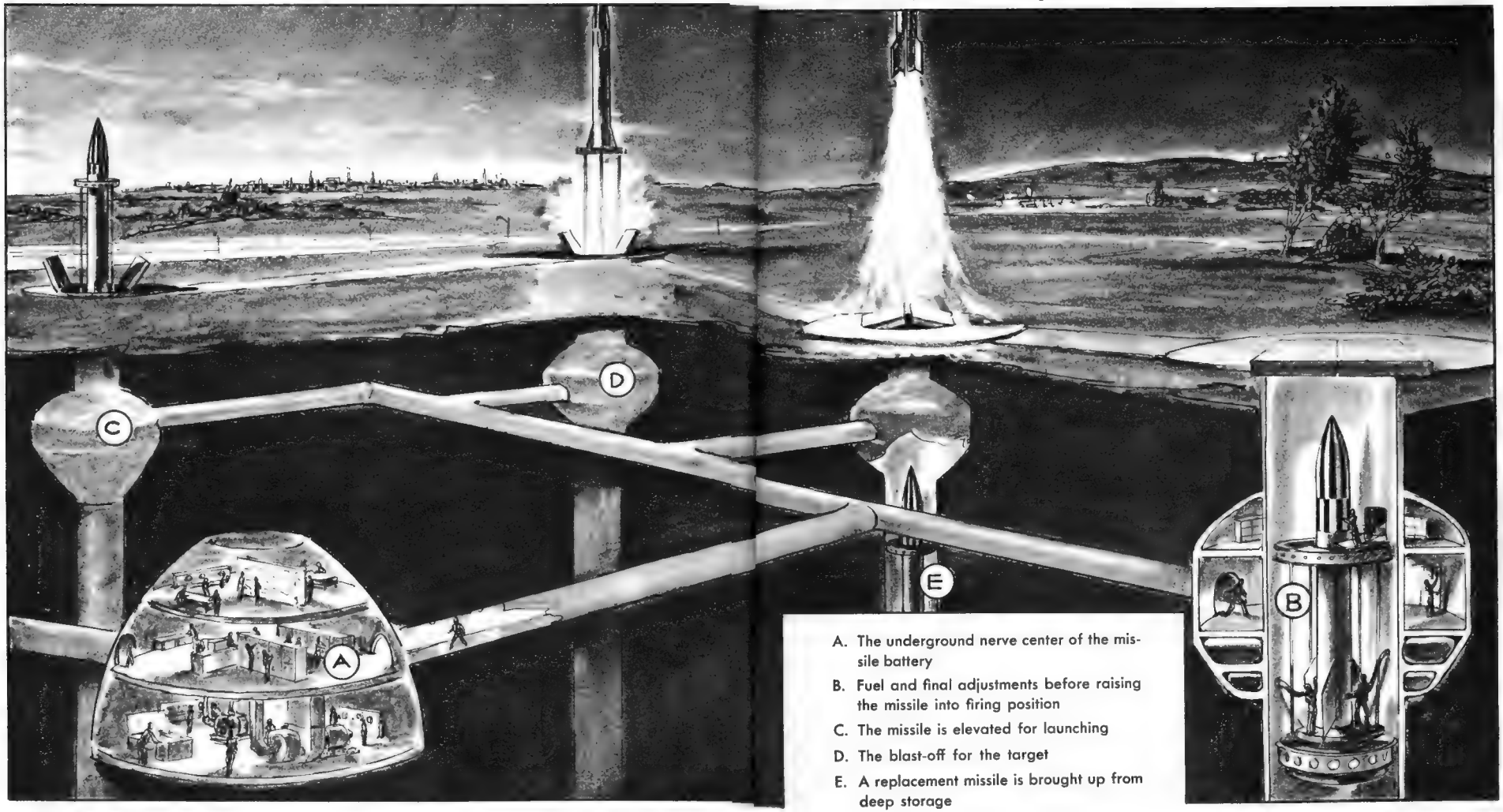
The experimental vertical-rising rocket launcher is designed to fit that need. Powered by two jet engines which also drive four ducted fans for vertical lift, this vehicle is fitted with two revolving banks of rockets that can be fired singly or in salvos to give support to advancing battle groups.

Kept in hiding behind a rampart of mountains, the rocket launchers can proceed to the atomic blast site as soon as radiation lifts, in order to cover the occupation of the battlefield by ground forces without delay.



HOW WILL PERMANENT MISSILE BASES BE CONSTRUCTED FOR INSTANT USE AGAINST ENEMY ATTACK?

SNUGLY hidden deep below ground-level, long-range missiles stand in readiness for quick firing in case of an enemy attack. Within its underground labyrinth, the missile battery has a Control Center, electronic computers, fueling facilities, supply, and living quarters. When the alarm is sounded, concrete trap doors open and the missiles are brought above ground with aiming and range data already set. The Launch Officer can fire them singly or in salvos.



A. The underground nerve center of the missile battery

B. Fuel and final adjustments before raising the missile into firing position

C. The missile is elevated for launching

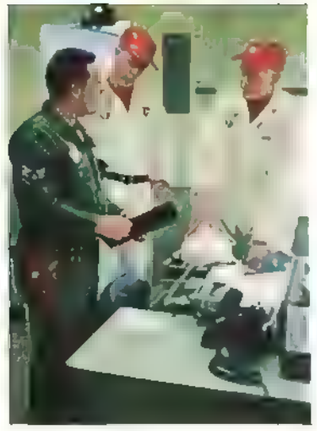
D. The blast-off for the target

E. A replacement missile is brought up from deep storage

50662
U.S. AIR FORCE
U.S.

"Oh-oh!"

Kidde
Kokoon
CANNED FOOD
CANNED WATER



Command crew, in their distinctive garb (far left), arrive from the Air Force base to begin their twelve-hour stint in the underground control capsule. They check in with the security guards, then descend to the capsule to relieve their fellow officers. Standing at attention, the new team receives the neck chains from which hang the launch keys that fire the missile, and the codes that translate the orders. The retiring team then rides the elevator to the surface while the new crew settles down to its vigil.

The capsule team work steadily at their respective consoles, recording and interpreting electronic data on the condition of the missiles buried in silos five miles distant. Separation of the consoles precludes the possibility of a berserk or accidental firing of the missile. The basic job is to keep on the alert for the fatal firing they hope will never come.

The new breed of Air Force missilemen report for duty, briefcases in hand, wearing white coverall-type uniforms, hard (safety) hats, and bright-colored scarves. The color of the scarf indicates the wearer's squadron. At the start of the day's duty, the special firing-lock keys and the critical code envelopes are ceremoniously tucked inside these scarves. The two crew members also pack .38-caliber revolvers—not for protection against intruders (who couldn't possibly gain access to the capsule) but for protection against each other. In fictional portrayals there must be at least one big scene in which a claustrophobic officer runs amok. The missilemen of the 341st are highly amused by this standard literary gambit. Nevertheless, the regulations don't overlook the possibility.

The missilemen are not only volunteers but are hand-picked on the basis of their maturity of judgment, stability of character, and "positive motivation to the mission." They all hold B.S. degrees and, as a regular part of the program, are assigned several hours a week to study and work for a master's degree in aerospace engineering. During their hours in the capsule, they are fully occupied in monitoring the status of the missiles under their command. They watch lights and listen to signals that continuously report on temperatures, pressures, and equipment readiness in the silos. If a fault is indicated, they simply press a particular button and a tape-recorded voice, governed by a computer, tells them what is amiss. They also practice alerts from time to time, but unlike the crewmen who handle the liquid-fueled Atlas and Titan 1 missiles that are elevated into firing position, Minutemen can never "exercise the hardware." There is just one movement in a Minuteman: its launching. The first-stage rocket fires the bird directly from the bottom of the silo and, simultaneously, the concrete lid is blasted off the top.

All of which, naturally, makes the "positive-control" precautions excruciatingly important. The sequence begins with the President's order to SAC headquarters at Omaha (or perhaps to an airborne top-command post), where two or more high-ranking officers must agree that the firing order from the White House is legitimate. They send a coded message to the Minuteman command capsule by teletype, telephone, and short-wave radio. At this moment a special alarm will sound in each of the control capsules. The outer doors will be securely bolted, and groups of code letters will be read over the voice circuit to the commanders. The commander and his deputy will decode the order separately from their red-bound code books. If both of them agree the order is to fire, they will arm their ten missiles and, then, simultaneously insert their keys in the firing locks of their respective consoles to trigger the missiles.

The commanders of the fourteen other capsules, meanwhile, have been acting under the same command instructions. At least one of the other capsule teams must reach the same conclusion as to the meaning of the orders and activate its firing keys or the first team's firing sequence will not be completed.

For the relief crew at the control center, the cooks and security guards have prepared, next door, [illegible] of tranquility. Commercial TV [illegible] the barracks.

MINUTEMAN'S NEW HOME ON THE MONTANA RANGE

Looming up, on the left, from its solitary, uninhabited silo sunk eighty-five feet deep in the Montana wheat and cattle lands, is a solid-fueled Minuteman missile, the first of this nation's second-generation ICBM's. Fully operational and combat-ready, it is armed with a thermonuclear warhead that packs an explosive force roughly equal to 800,000 tons of TNT, and is aimed at a specific target somewhere within its 5,700-mile range (the distance to Moscow is 5,200 miles).

The missile is launched by remote control and cannot be destroyed by action from the ground once it blasts off. However, it is not finally armed in flight until all three stages of the rocket have fired and the missile is on target according to the directions of its inertial-guidance system. A nuclear explosion will not occur if the missile falls short of, or overshoots, its intended target area.

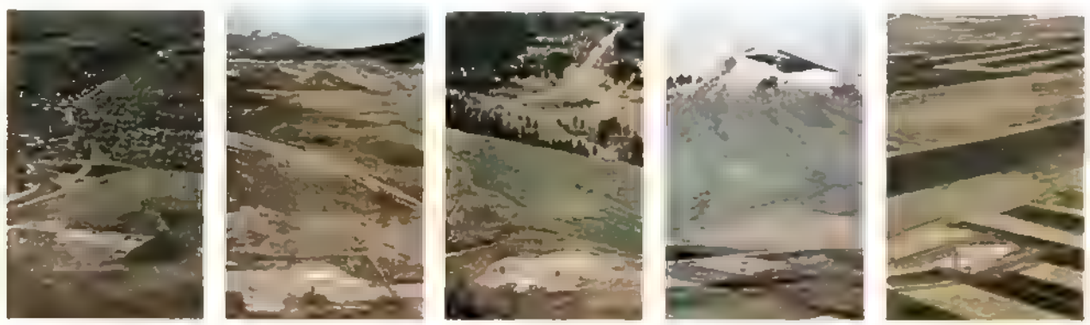
The 341st Strategic Missile Wing, operating out of Malmstrom Air Force Base at Great Falls, Montana, has just rounded out its full complement of 150 Minutemen. The 341st is the first of five wings scheduled to be operational by 1965. The additional wings will be located near Air Force bases in North Dakota, South Dakota, Missouri, and Wyoming.

Minuteman is a key instrument in the Pentagon's strategy for nuclear deterrence. Thanks to its solid-fuel propellant and relatively simple maintenance, it lends itself readily to placement in "hardened and dispersed" sites, and can be counted upon to ride out a massive nuclear attack by the enemy. By the same token, it is capable of almost instantaneous retaliation. And finally, as the most economical of all U.S. missiles, Minuteman can be produced in quantities calculated to discourage an enemy from striking in the first place.

Never in military history has such a concentrated assemblage of destructive firepower been so completely masked in a setting of utter pastoral peace and tranquillity. The 341st Wing's 150 launching silos are deployed over 19,000 square miles of lonely, rolling prairie in central Montana. To the passing traveler's idle eye there is nothing more to see than a level slab of concrete, enclosed in a chain-link fence, nine feet high, and guarded only by four big, black electronic sensors.

For each ten-missile emplacement there is a remote launch-control center, and these, too, are architecturally inconspicuous above ground. The surface building is a squat, one-story cottage that houses a three-man security guard and two cooks, and provides a small recreation room and dining and sleeping quarters. Fifty feet below, reached by elevator, is the suspended steel control capsule. Here, behind a twenty-ton door locked in place by hydraulic-powered steel bolts, the command crew of two—usually a captain and a lieutenant—keep their eerie watch. Their every official act is bound by the strictest procedure anywhere in military life, as detailed on the following pages. Only on the order of the President of the U.S., relayed through a series of "fail-safe" checks, will they culminate this procedure by jointly triggering the thirty-two-second process that sends ten Minutemen hurtling at 15,000 miles an hour toward ten targets.

Under each of these simple slabs of concrete, spotted throughout the Montana countryside, a Minuteman ICBM is poised and armed for flight.



Photographs by Marvin Koner

THE AIR FORCE IN KOREA! FIRST WE ARE GOING TO FLY WITH THE FIGHTERS! WHEN THE MIG 15 CHALLENGED US IN KOREA, THE AIR FORCE WAS QUICK TO REPLY! THIS STORY CONCERNS THE SWEPT-WING JET THAT WAS THE AIR FORCE'S ANSWER TO THE MIG 15... THE NORTH AMERICAN...

F-86 SABRE JET!

YEP! THIS IS A SABRE JET! GOOD SHIP! I DON'T HAVE TO TELL YOU *HOW* GOOD! THE NEWSPAPERS CAN TELL YOU *THAT!*

BUT I'LL TELL WHAT IT'S LIKE FLYING ONE!.. LIKE THE TIME WE WERE FLYING A COMBAT PATROL BENEATH THE OVERCAST.

...SUDDENLY, A CALL FOR HELP CAME IN OVER THE INTERCOM...

AA

RESCUE

BENDIX TROPHY WINNER

MARCH
A/C CAPT R SOMERS
NAV CAPT R.MCDONALD
DSO CAPT J.WALDEN
C/C MAJ. COCKRELL

SPEED 1214 71 MPH

BB

CC

2458
2458

DD B-58A HUSTLER 5704-0300

9245892458

EE

FF

RESCUE RESCUE

GG

JJ

M-2

KK

LL

WILLING, ABLE, READY

MM

STRATEGIC AIR COMMAND

NN

OO

PP

HH

II

UU

TT

RESCUE

VV

QQ

RR

U.S.AIR FORCE B-58A
A.F. SERIAL NO. 59-2458-A
SERVICE THIS AIRCRAFT WITH GRADE
JP-4 FUEL. REFERENCE T.O. 42B1-1-14

SS

WW

U.S.AIR FORCE
U.S.AIR FORCE

USAF

XX

YY

ZZ

WALKWAY

AAA

BBB

WALKWAY

NO STEP

CCC

FFF

DDD

EEE

WALKWAY

THE WARNING NETWORK

Here's what would happen if an enemy air attack were launched against our continent:

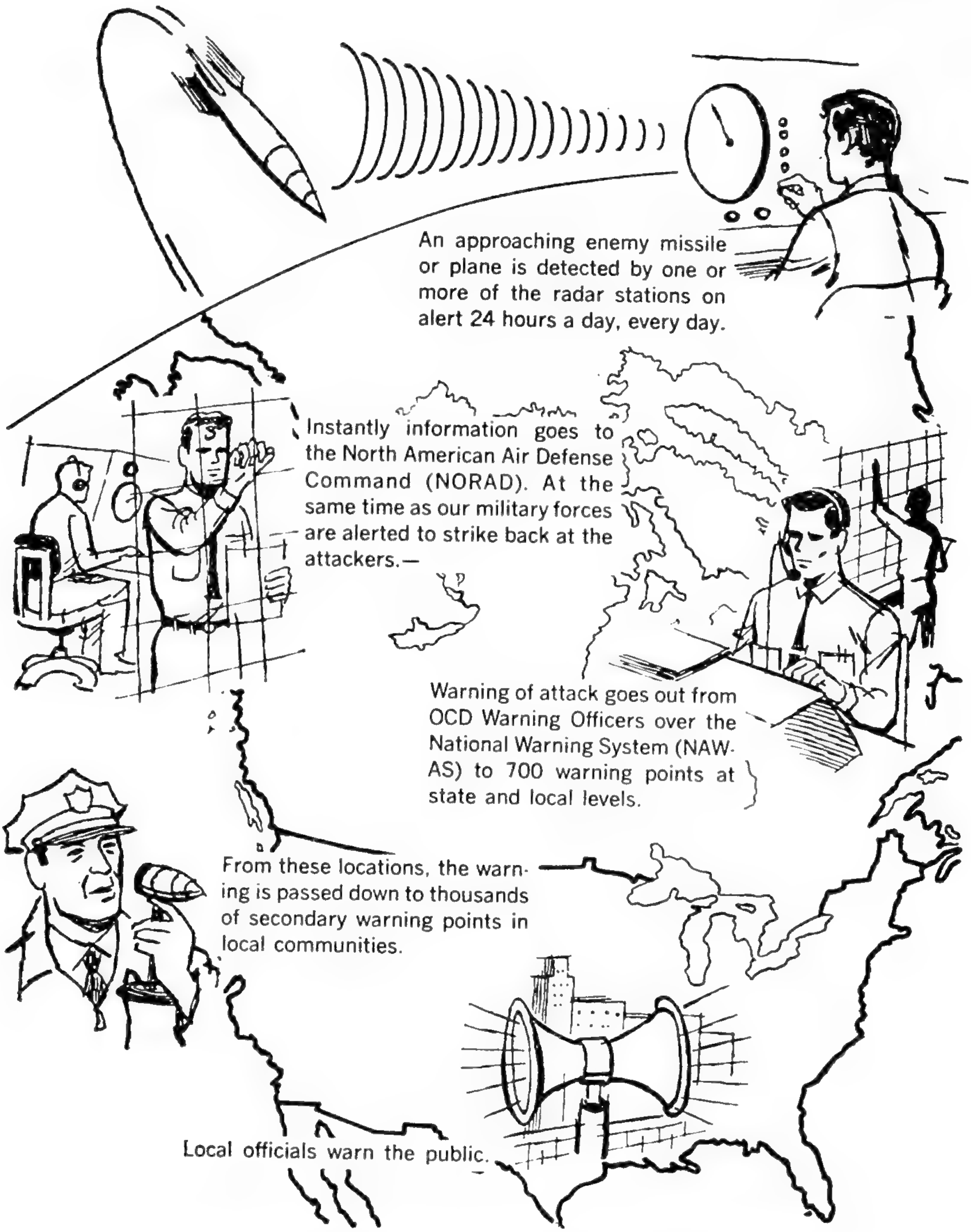
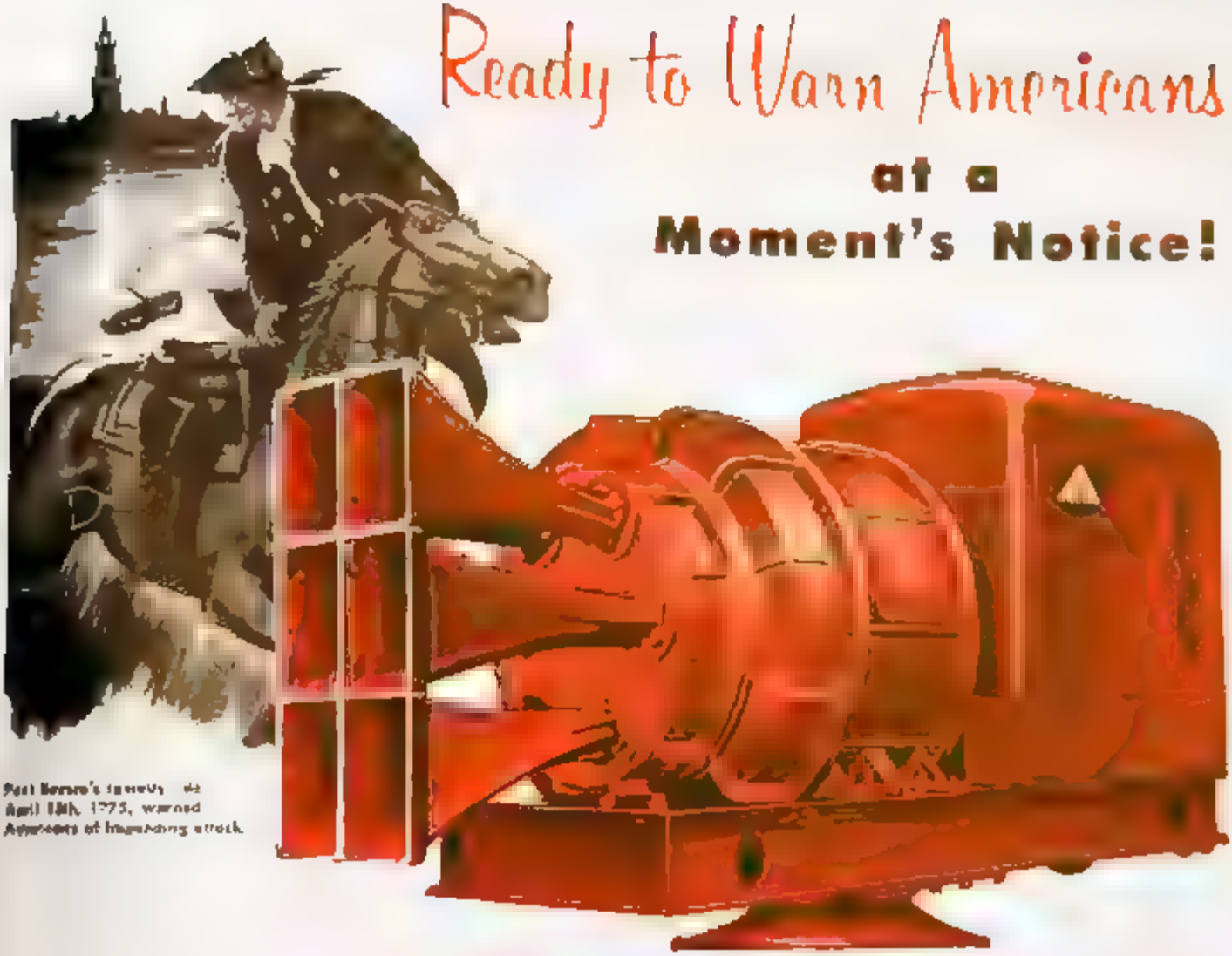

An approaching enemy missile or plane is detected by one or more of the radar stations on alert 24 hours a day, every day.
Instantly information goes to the North American Air Defense Command (NORAD). At the same time as our military forces are alerted to strike back at the attackers.—
Warning of attack goes out from OCD Warning Officers over the National Warning System (NAWAS) to 700 warning points at state and local levels.
From these locations, the warning is passed down to thousands of secondary warning points in local communities.
Local officials warn the public.

FIGURE 35.—Association of warning network elements.

Ready to Warn Americans at a Moment's Notice!



Paul Revere's famous ride on April 18th, 1775, warned Americans of impending attack.

CHRYSLER AIR RAID SIREN

- **Sounds Loudest Warning ever produced**
- **Has independent power**
- **Can be remote-controlled**
- **Cost less for complete coverage**

Today, Chrysler Air Raid Sirens are standing ready to warn American cities and towns in case of attack.

These sirens produce the loudest warning sound ever achieved by modern production. They are independently powered by the revolutionary new 180 horsepower Chrysler V 8 Industrial Engine. This great engine is the only power needed to motivate the Siren. When operating at full speed the Chrysler Siren has a range of four miles.

Chrysler Air Raid Sirens can be remote-controlled from a hidden central control station, or may be manually operated at the location site.

Chrysler Sirens offer greatest coverage with the least number of sirens. More sound carries over a wider area.

For complete information, specifications and availability of this most modern warning device write Siren Layout Service, *Marine and Industrial Engine Division, Chrysler Corp., Trenton, Michigan.*

Civil Defense is a common need, shared by all. Help yourself to preparedness. Join the Civil Defense group in your area.

CHRYSLER
AIR RAID SIREN

Cut out the big card and hang in a conspicuous place in your house.
All members of the family should carry the wallet-size cards.

REVISED CIVIL DEFENSE

Air Raid Instructions

Published by the Federal Civil Defense Administration

ALERT SIGNAL

A steady blast of 3 to 5 minutes on sirens, whistles, horns, or similar devices.

WHAT TO DO

Do not use the telephone.
Tune your AM radio to a Conelrad station (640 or 1240 kc) for emergency instructions.
Do not become panicky if your radio is silent for a short time. This is necessary to switch to emergency broadcasting frequencies.
Know your local civil defense emergency plans. Obey police and civil defense instructions.

TAKE COVER SIGNAL

Wailing tone or short blasts

for 3 minutes on sirens, whistles, horns, or similar devices

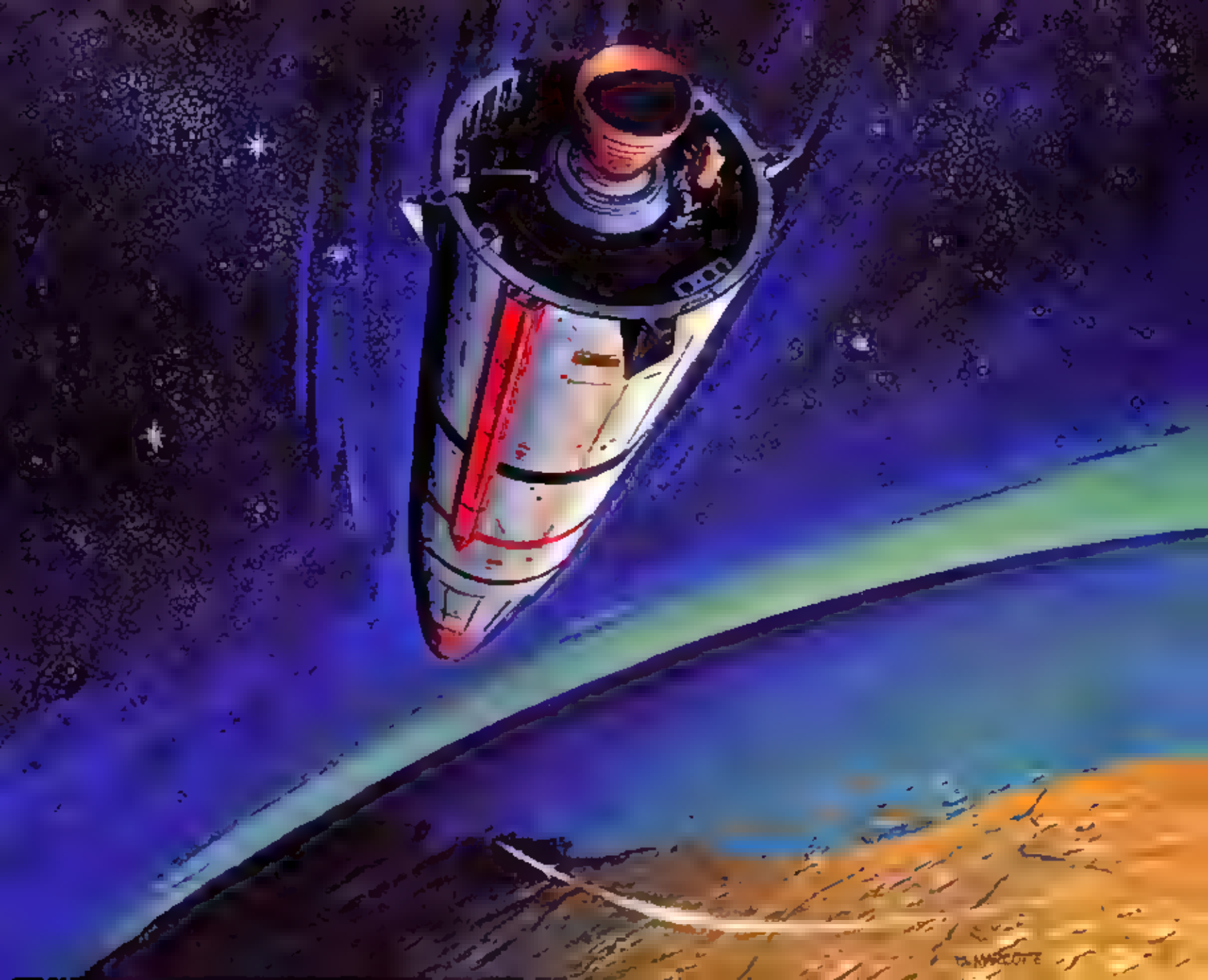
WHAT TO DO

At Home: Get into your home shelter immediately.
If you have none, shut all outside doors and windows and take cover in the basement or an interior first-floor room.
Outdoors: Seek the best available cover.
Stay Put until you get word to come out.
Important: If you see a bright flash of light, take cover instantly.

640—REMEMBER CONELRAD IS THE KEY—1240

Materials for reproducing these instructions in quantity are available free through your State Civil Defense Director. They may be reprinted and distributed without further permission.

COUNCIL OF ECONOMIC ADVISORS



U.S.
McCall

First American Jet Engine

Today, General Electric
is the world's largest known
producer of jet engines

GENERAL ELECTRIC

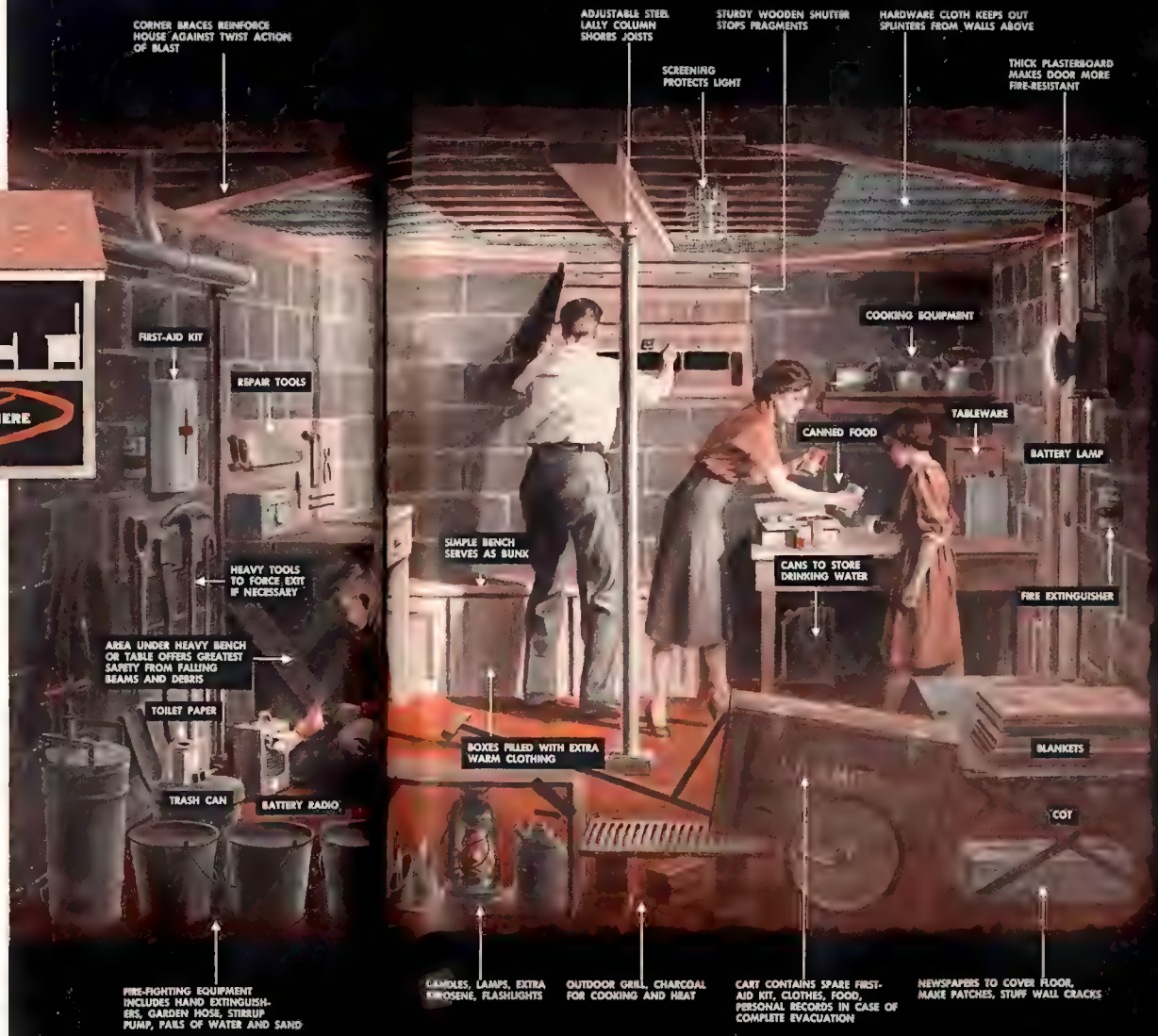
EXIT

NUCLEAR BOMB!
FALL OUT SHELTER
ON DISPLAY HERE!
Public Invited
OPEN

What You Need in a Basement Foxhole

How well your basement refuge will protect you depends on how carefully you choose its location and equipment. As indicated in the drawing above, keep away from the furnace or oil tank (they might start a fire) and the kitchen or bathroom (their heavy fixtures might fall in on you). Outfit your foxhole for pioneer living. You may have to cook over a charcoal fire, jellied-alcohol burner, or kerosene-lamp stove. You shouldn't count on any utilities except possibly gas (the mains, deep underground, are reasonably bombproof). Water pressure may drop after a raid. The water is not likely to become radioactive, but may be polluted. So fill all available containers before the raid; water obtained after the raid should be boiled or purified with chlorine tablets. Telephone service, if not dead, will be badly jammed with emergency calls. Electricity is almost sure to be lacking.

Drawing above shows why floor near outside wall is safest place in cellar if joists fall in. But upstairs, interior partition walls are safer.


CORNER BRACES REINFORCE HOUSE AGAINST TWIST ACTION OF BLAST
ADJUSTABLE STEEL LALLY COLUMN SHORES JOISTS
STURDY WOODEN SHUTTER STOPS FRAGMENTS
HARDWARE CLOTH KEEPS OUT SPLINTERS FROM WALLS ABOVE
SCREENING PROTECTS LIGHT
THICK PLASTERBOARD MAKES DOOR MORE FIRE-RESISTANT
FIRST-AID KIT
REPAIR TOOLS
COOKING EQUIPMENT
TABLEWARE
CANNED FOOD
BATTERY LAMP
HEAVY TOOLS TO FORCE EXIT IF NECESSARY
SIMPLE BENCH SERVES AS BUNK
CANS TO STORE DRINKING WATER
FIRE EXTINGUISHER
AREA UNDER HEAVY BENCH OR TABLE OFFERS GREATEST SAFETY FROM FALLING BEAMS AND DEBRIS
TOILET PAPER
BOXES FILLED WITH EXTRA WARM CLOTHING
BLANKETS
TRASH CAN
BATTERY RADIO
COT
FIRE-FIGHTING EQUIPMENT INCLUDES HAND EXTINGUISHERS, GARDEN HOSE, STIRRUP PUMP, PAILS OF WATER AND SAND
CANDLES, LAMPS, EXTRA KEROSENE, FLASHLIGHTS
OUTDOOR GRILL, CHARCOAL FOR COOKING AND HEAT
CART CONTAINS SPARE FIRST-AID KIT, CLOTHES, FOOD, PERSONAL RECORDS IN CASE OF COMPLETE EVACUATION
NEWSPAPERS TO COVER FLOOR, MAKE PATCHES, STUFF WALL CRACKS

Turn the page, please, for more tips on survival.

MOST POWERFUL AIRPLANE

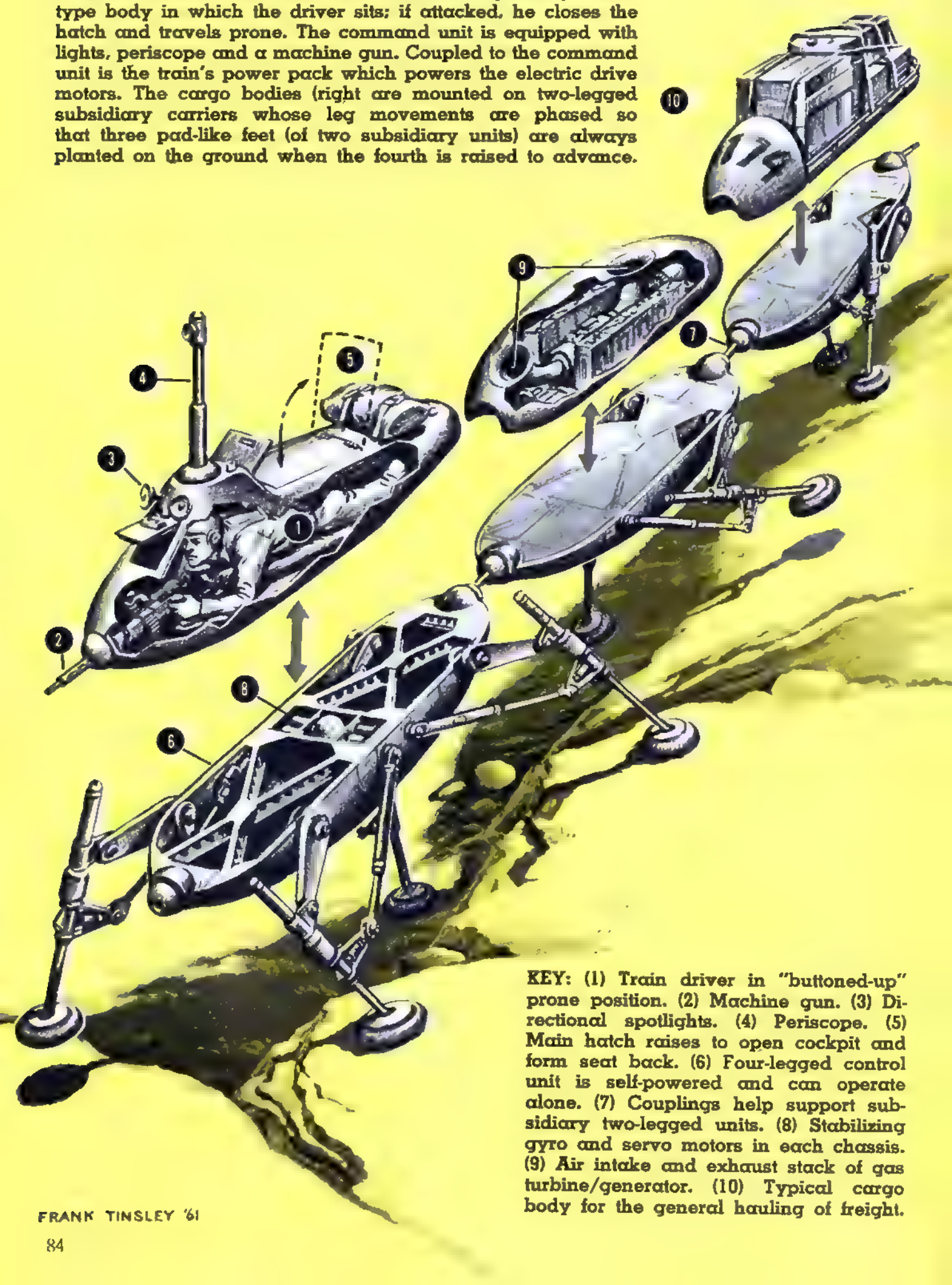
The XB-70A Valkyrie is the most powerful airplane in the world. This delta (triangular) winged experimental bomber weighs 265 tons (530,000 pounds) and is 196 feet long. The distance from wing tip to wing tip (wing span) is 105 feet. It has flown at speeds of Mach 3.0 or 2,000 M.P.H., and as high as 70,000 feet. *The Valkyrie gets its power from six turbojet engines, which have a total thrust or driving force of over 180,000 pounds.*

GO-POWERFUL CHEERIOS KID

The Cheerios Kid gets go-power from Cheerios! Like you, he needs a fresh supply of energy every day. And, a breakfast with Cheerios and milk is packed with muscle-building protein and energy for go-power. Get yourself Go. Get Cheerios!

GENERAL MILLS

MI's mechanical walking train consists of self-propelled cargo and personnel carriers strung out behind a four-legged command unit. A gyro mechanism and self-adjusting "knees" enable each unit to maintain a level attitude over all but the roughest terrain. The control unit (left) has a pivoting, turret-type body in which the driver sits; if attacked, he closes the hatch and travels prone. The command unit is equipped with lights, periscope and a machine gun. Coupled to the command unit is the train's power pack which powers the electric drive motors. The cargo bodies (right are mounted on two-legged subsidiary carriers whose leg movements are phased so that three pad-like feet (of two subsidiary units) are always planted on the ground when the fourth is raised to advance.



KEY: (1) Train driver in "buttoned-up" prone position. (2) Machine gun. (3) Directional spotlights. (4) Periscope. (5) Main hatch raises to open cockpit and form seat back. (6) Four-legged control unit is self-powered and can operate alone. (7) Couplings help support subsidiary two-legged units. (8) Stabilizing gyro and servo motors in each chassis. (9) Air intake and exhaust stack of gas turbine/generator. (10) Typical cargo body for the general hauling of freight.

FRANK TINSLEY '61

WORLD'S LARGEST WHIRLYBIRD

Twin 1,650-hp Pratt & Whitney reciprocating engines power craft.

THE world's largest transport helicopter and America's first twin-engined tandem whirlybird transport is the Piasecki YH-16. An important feature of its tandem design is that cargo can be loaded quickly without too much regard for weight balance. The craft's rotors are connected by a shaft to permit single engine operation and its all-metal blades, 82 feet in diameter, are the biggest shaft-driven rotors in existence at the present time. •

Aside from conventional front door, large rear ramp aids in loading, unloading cargo.

A commercial version of the YH-16 is planned which will seat 48 to 72 passengers.

Photos by Howard Levy

Cavernous interior is capable of hauling 40 troops, 32 litter patients or 3 jeeps.

Artist's modified design has long legs on helicopter for landing heavy equipment.

U. S. Air Force F-89D Northrop Scorpions

Painting by Jack Leynnwood

1907 1957

Golden Anniversary of Silver Wings

The United States Air Force through fifty years of leadership in the progress and development of Air Power has become an armed force for peace never exceeded in the history of mankind!

USAF

How to Hit a Bullet with a Bullet in a Blizzard

The pyrotechnic display above is a hypothetical aerial battle of the future, in which Nike-X has gone into action to defend a large coastal city from attack by nuclear-armed ICBM's. Though the target city appears on the horizon, exaggerated in size in this schematic drawing, the interceptions would actually be made, of course, at a very high altitude, where the detonations would be harmless.

The typical attack Nike-X is designed to meet would be launched without warning and might come simultaneously from several directions. Early-warning radar would alert the defense fifteen minutes, or slightly more in advance. The missiles would not appear as isolated objects, but would lurk in clouds of material hundreds of miles long, soaring through space at 18,000 miles per hour. Mixed among the nuclear warheads would be a variety of decoys launched by the aggressor to confuse the defense: metallized balloons (shown here in green), scraps of metal (gray), and dummy missiles (white). Nike-X would actually have only about a minute to determine which objects were real warheads and to destroy them.

The predecessors of Nike-X were never worth deploying because, although they could tell something ominous was on its way, they could not answer until too late the crucial question: "Is it a nuclear attack?" Flocks of decoys could have tricked them into wasting all their defensive ammunition by the time a real ICBM arrived. Nike-X can, like the Continentals on Bunker Hill, hold fire until it sees "the whites of their eyes."

The nerve center of a Nike-X installation would be the multi-function array radar (MAR), shown at the bottom of the picture, left of center. MAR is chiefly responsible for detecting and tracking approaching clouds of matter and deciding which parts look dangerous. It will be linked to a computer with more speed and capacity than any operating today. The radar itself has no moving parts and thus will not be slowed, as conventional radars are, by the inertia of revolving antennas. Instead, its myriad tiny pickups can almost instantaneously shift their "gaze" by electronic switching. MAR could scan and rescan the whole arc of the sky in a fraction of a second and so analyze several suspicious-looking "clouds" at once.

The most difficult part of MAR's job will be to identify decoys, which are designed to look like real warheads at most radar frequencies, and which, in the near vacuum of outer space, travel in the same trajectories as warheads. Exactly how it copes with the problem of similar radar reflections is a well-kept secret. But tests of decoys developed by the U.S. have shown how radar images change appearance at different frequencies and different distances, and these changes are incorporated into the decision-making program of the MAR computer. Discrimination between light and heavy objects must wait until they encounter substantial air resistance in the atmosphere. Then, as MAR can observe, decoys slow down more rapidly than the very much heavier warheads.

Backing up each MAR will be a number of missile-site radars (MSR), like the three shown in the picture. (Actually, they would ring the city.) Largely under orders from MAR, they will launch defensive missiles from surrounding silos and guide them on a collision course with incoming ICBM's. But the MSR's could also, to some extent, act independently if the MAR were to be severely damaged or confronted by an attack so intense as to tax its traffic-handling capacity. Besides, MSR's will keep watch over the MAR's blind spots—e.g., parts of the sky blocked off by a city skyline or a mountain.

The Nike-X system employs two different types of missiles to deliver a one-two punch. If the MAR decides relatively early that an approaching cloud is ominous, a fifty-foot Zeus missile (slightly curved upward trajectory, far left) would be launched into the middle of the "cloud" and detonated there. The interception might be made near the fringe of the atmosphere, 200 to 400 miles up, while the ICBM's were roughly a minute from the target.

But MAR might not be able to reach so prompt a decision, or some missiles might elude the Zeus. In that case Nike-X would rely on the almost instantaneous reflexes of the twenty-seven-foot Sprint, the fastest-acting guided missile ever built. Literally exploded from its silo, like a bullet from a gun, it gains speed at a rate of more than 3,000 feet per second while traveling a virtually straight path. Phenomenal acceleration enables Sprint to intercept an ICBM at perhaps 100,000 feet inside the atmosphere and well within final seconds of the assault.

Sprint's role is especially critical when elaborate decoys force the MAR to delay its discrimination decision. Transmitters might broadcast confusing radar signals (shown as a series of white bars, right). Worse yet, a sophisticated aggressor might fire a nuclear missile that would be detonated at the fringe of the atmosphere (big blast, left), creating a fog of electrically charged particles that would black out most radar in the vicinity. The MAR and the MSR's could still get a good deal of information, but very likely the second missile could sneak through the fog and would have to be knocked down by a Sprint.

The cost of individual Nike-X installations will vary over a wide range. Now, in the pre-production stage, price estimates are only tentative: $250 million to $400 million for each MAR with computer; $80 million to $100 million for each MSR; $1 million for a Zeus; and $600,000 to $700,000 for a Sprint. Mass production and technical improvements may lower these figures somewhat. Indeed, the efficiency of some key elements has increased threefold only in the last year. The total cost for a defense area will depend largely on how many MSR's it includes and whether ten or a hundred missiles are mounted around each. Great savings would result, at the sacrifice of some efficacy, by using a single MAR to cover two nearby areas—say, Chicago and Milwaukee.

"Attention, everybody! *The Civil Defense drill's starting*"

Here's a split-second problem for a public school, when a city-wide Civil Defense test happens to coincide exactly with dismissal time.

Five hundred youngsters making bedlam in the halls. The switchboard and public-address system just locked up for the night. And, in the principal's office, one man hears the C. D. siren and knows it's up to him to get everybody's attention at once.

No problem at all, if his school happens to have a Stromberg-Carlson communication system with its emergency announcement feature. He'll just pick up that distinctive *red* telephone on his desk and press the button. Instantly—even though all "regular" communication is turned off—a piercing signal is heard throughout the building and the telephone handset becomes a microphone for the principal to use in giving his message.

Such ***convenience*** is typical of the features built into all our systems. Complete intercom telephone service to as many as 165 rooms . . . FM or AM radio programs "piped" to all locations or a selected few . . . provision for tape recording and play-back . . . anything from nap-time music in the kindergarten to rock-and-roll in the gym is available at a student-operator's fingertips.

Maybe "Johnny" can or can't read. But, with the sort of help that modern audio engineering provides he sure can listen—and learn by doing so. That's the sort of role we are proud to play in helping to shape a bright and happy future for modern, fast-moving America. *"There is nothing finer than a Stromberg-Carlson."*

STROMBERG-CARLSON COMPANY

A DIVISION OF GENERAL DYNAMICS CORPORATION

S-C

ROCHESTER 3, N. Y.

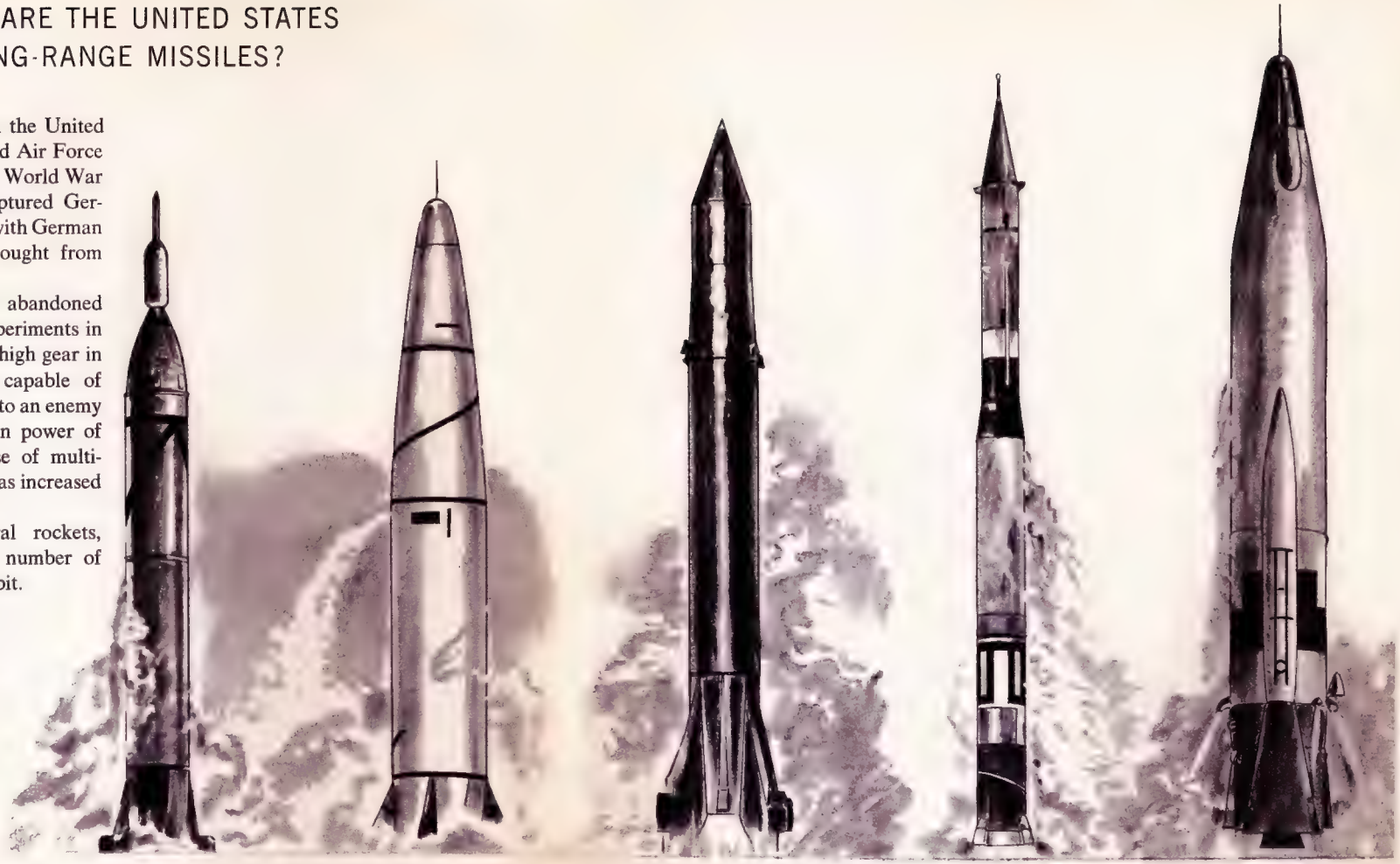
Telephones and Central Office XY® Dial Equipment, Pagemaster Relays and Switches • Sound Systems, Radio and Hi Fi • Civilian and Military Electronic Products

WHICH ARE THE UNITED STATES LONG-RANGE MISSILES?

MISSILE experiments in the United States Army, Navy and Air Force began soon after the end of World War II, when a quantity of captured German V-2 missiles, together with German rocket specialists, were brought from Europe.

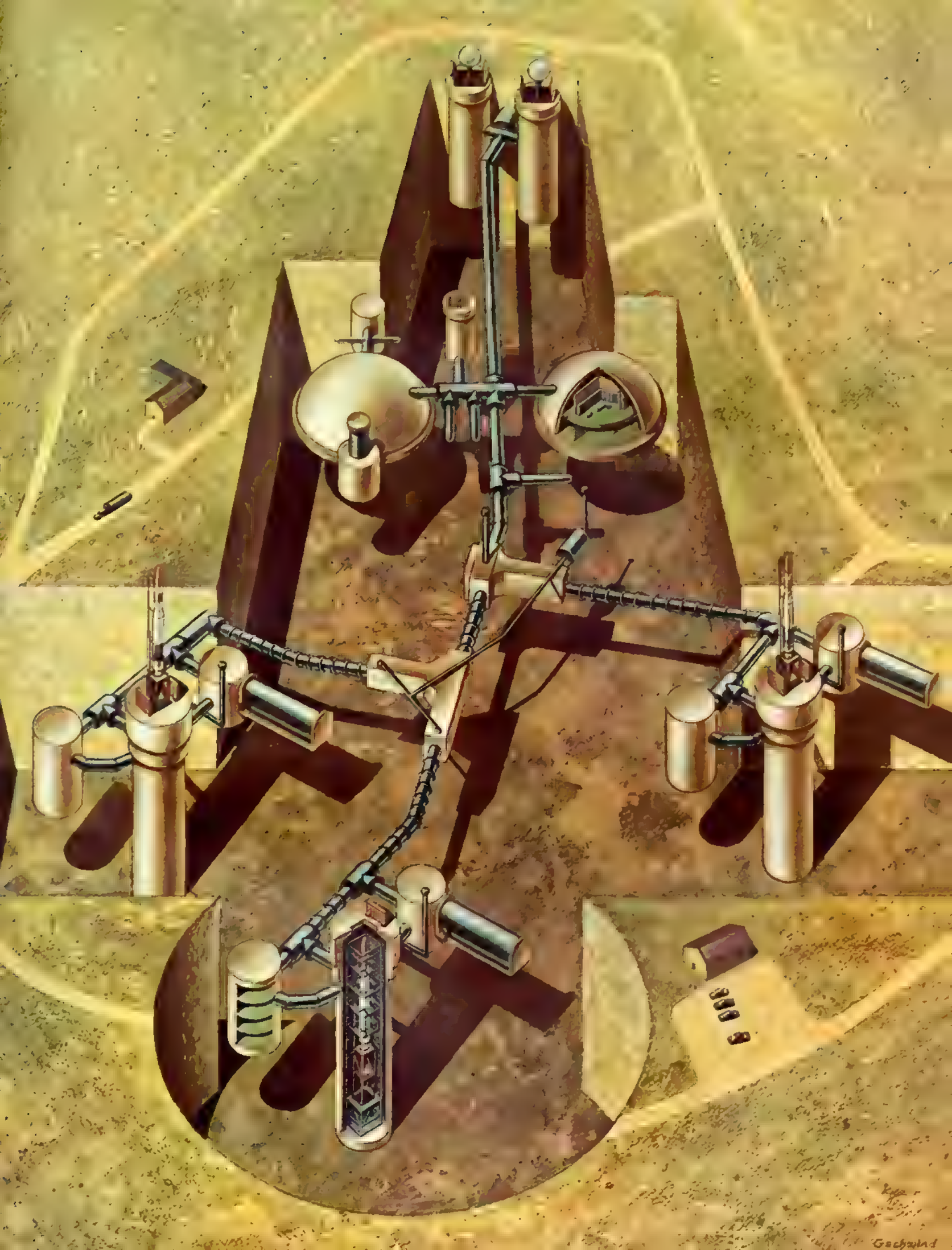
Rocket building, almost abandoned since Robert Goddard's experiments in the early 1900's, went into high gear in order to perfect missiles capable of carrying a nuclear warhead to an enemy target. With the increase in power of rocket engines and the use of multi-stage missiles, their range was increased to over 5,000 miles.

Combinations of several rockets, mounted in stages, put a number of American satellites into orbit.



The *Saturn*, described as "the world's largest rocket," is 162 feet tall and weighs 925,000 pounds. Its booster is made up of eight rocket engines clustered together, and it produces a thrust of 1,500,000 pounds at take-off. The first launching of the *Saturn* took place at Cape Canaveral, Florida on October 27, 1961. Ballistic missiles are passing through experimental phases, which will probably change their size, weight and configuration many times in the future.

	JUPITER	THOR	REDSTONE	VANGUARD	ATLAS
Service Branch	U.S. Army	U.S. Air Force	U.S. Army	U.S. Navy	U.S. Air Force
Height (feet)	58	62	69	72	75
Weight (pounds)	105,000	110,000	?	22,000	243,000
Range (miles)	1,500	1,500	200+	300 Mi. Alt.	9,000
Contractor	Chrysler	Douglas	Chrysler	Martin	Convair



AF
48

ATLAS MAP SUPPLEMENT: SWITZERLAND, AUSTRIA, AND NORTHERN ITALY (page 396)

VOL. 128, NO. 3 SEPTEMBER, 1965

NATIONAL GEOGRAPHIC

UNITED STATES AIR FORCE

POWER FOR PEACE
CURTIS E. LEMAY 291

OF FLAMES AND MEN
KENNETH F. WEAVER
ANTHONY WESTROP, ALBERT MOLEWAY

MAN'S OWN MOUNTAINS, THE ALPS
RALPH GRAY
WALTER MEAYERS EDWARDS, WILLIAM

SAFE LANDING ON SABLE,
ISLE OF 500 SHIPWRECKS
MELVILLE BELL GROSVENOR

ASIAN INSECTS IN DISGUISE
EDWARD S. ROSS 432

AMERICA'S 6,000-MILE WALK IN SPACE

WATCH "AMERICANS ON EVEREST" FRIDAY, SEPTEMBER 10, ON CBS TV (page 448)

THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

HERE'S HOW LONG-RANGE RUSSIAN SUICIDE PLANES COULD LAUNCH A-BOMB BLITZ AGAINST KEY AMERICAN CITIES
APPROX. FLYING DISTANCE: 5500 MI.
APPROX. FLYING TIME: 14 HRS. (400 MPH.)
APPROX. FLYING DISTANCE: 4300 MI.
APPROX. FLYING TIME: 11 HRS. (400 MPH.)
CLEVELAND
NEW YORK
WASHINGTON
FRANK TINSLEY

super-bomber has been produced there so that might very well be the vehicle of attack. Could they reach American target cities from their trans-Polar bases undetected? That depends upon many factors. Congress has appropriated funds for the *beginnings* of a protective radar net. Such a net, however, is like a chain—only as strong as its weakest link. To be completely effective, it must be all-inclusive, with stations in Canada and Mexico and on ships at sea. This is a tremendously expensive setup.

To take advantage of such a warning system we would need thousands of fighter aircraft and a well-planned system of civilian defense including specially built shelters. These facilities do not exist at present. Planes flying over Canada now would cross thousands of miles of wilderness where the few inhabitants would have little idea of whether they were Russian bombers or Hottentot airliners. And, if the planes carried standard U. S. Air Force markings indicating that they were experimental types, even the Air Force might be fooled temporarily.

Aside from the material damage, what would be the probable outcome of such an attack? Well, first of all, the nation would be paralyzed by shock for a short while. The wounds would be so great, there would be a tremendous job to do merely in overcoming the first [*Continued on page* 174]

"THIS is WQZ, your favorite local station for music and news, bringing you a noonday program of recorded hit tunes. The first number on today's show will be. . . .

"Just one moment, please. Here's an important bulletin from our newsroom, just handed me. It's dateline Washington, D. C.

"A terrific explosion has just wrecked downtown Washington. The blast, of unknown origin, seems to have damaged communication lines out of the city.

"I can't tell you any more because there is no more to the bulletin. So, until further news comes in we'll return to our. . . .

"Wait! Here! The explosion leveled the Capitol building where Congress, the Cabinet and all high officials had gathered to hear the President deliver an important message. Everybody is believed killed. Washington is in flames!

"Another bulletin! This one's from New York. New York's financial district, nerve center of the nation's industry, was battered by a blast from a bomb apparently dropped by an unidentified plane. . . .

"My God, here's more! Four other cities—Cleveland, Detroit, Chicago and Pittsburgh—have also been attacked by what some scientists think are atom bombs!

"Yes, that's what it looks like—a sneak atom-bomb attack! I've got a thing here that says the Associated Press can't raise its Washington Bureau. Communica-

Here's an artist's impression of what would happen to our nation's Capitol under an atom-bomb attack.

FRANK TINSLEY '49

FALLOUT

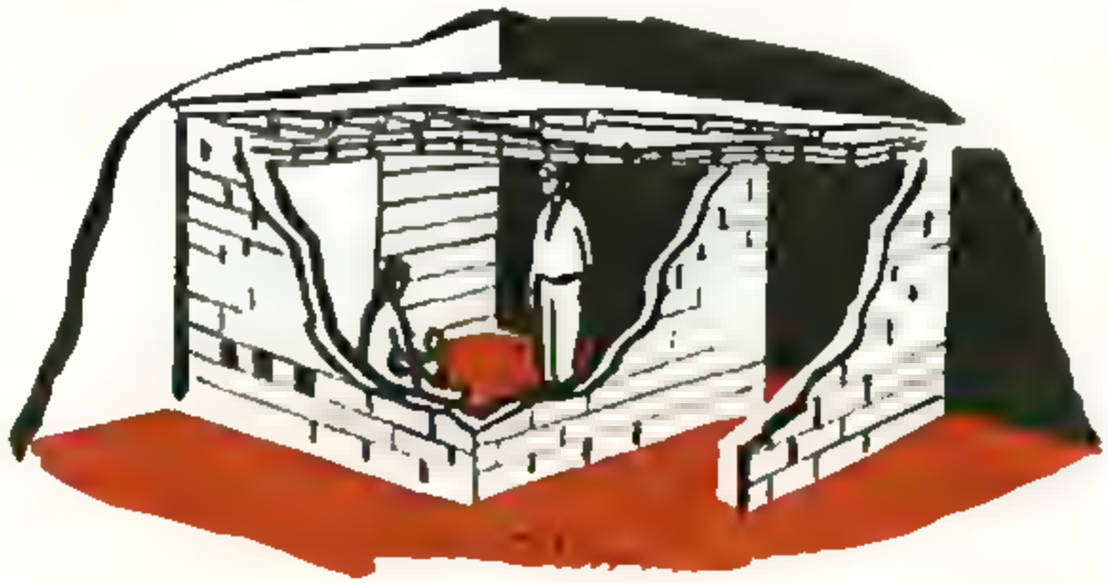
Dangers facing you: The millions of tons of pulverized earth and debris sucked up as high as 15 miles by the fireball of a large nuclear explosion become a deadly radioactive fallout cloud. It spreads its lethal radioactivity over wide areas, hundreds of miles downwind from ground zero. Fallout radioactivity cannot be detected by taste or touch. Sometimes, but not always, the fine ash or dust carrying the radioactivity is visible. It fills the atmosphere, the air you breathe, and attacks the vital organs of your body with invisible radiation.

PROTECTION FROM FALLOUT

The best protection against fallout radiation is a fallout shelter. Every family should have one. It can be an area in a building of such heavy construction as to afford the required shielding or a shelter designed to be a unit of a family dwelling.

Several types of family fallout shelters are described and illustrated in a booklet entitled "The Family Fallout Shelter", MP-15. Copies may be obtained from your local civil defense director.

Basement Concrete Block Shelter, designed as a do-it-yourself project. Solid concrete blocks are used to build it.



Ten for Survival

SURVIVE NUCLEAR ATTACK

POPULAR SCIENCE

JANUARY · 35 Monthly

Firsthand performance report on

OUR DEADLIEST BOMBER

Who Are America's Worst Car Drivers?

Supermarine Swift FR Mk 5 of No 79 Squadron, RAF

БУДЬ НАЧЕКУ!

Sukhoi Su-15 of the Soviet Air Force

COVER STORY

Sectional view of the prone pilot bed superimposed on conventional jet fighter shows the radical reduction in diameter of the fuselage which would be possible. Armament is air-to-air missile launcher.

MECHANIX ILLUSTRATED©

15¢

November

Jet Pilots Fly In Bed—Page 70

ROCHESTER, N.Y.—GOLD RUSH CITY FOR INVENTORS

COMPLETE PLANS FOR A 35-MPH OUTBOARD RACEABOUT

FOR POWER
AND PERFORMANCE!

MARVEL *mystery oil*

More than 30 years of scientific research have gone into Marvel Mystery Oil, to meet the lubrication demands of today's high-compression engines. Use in crankcase, gas tank, or top cylinder oiler... the ideal cure for hydraulic valve trouble.

See your dealer or write
ENEROL MANUFACTURING CO., INC.
Dept. 234, 242 West 69th St.
New York 23, New York

BE ENGINE WISE...MARVELIZE NOW!

What About Those...
SECRET WEAPONS?

Every war has its weird whispers about death rays, super gases and invisible submarines.

By Clive Howard

THE businessman got the word from the son of a scientist who heard it from a college professor working in nuclear research. Now it's traveling with a speed that would embarrass sound. From tongue to tongue, from ear to ear the whispers twist the story about America's newest secret weapon.

What is it? You mean you haven't heard? Well, at last report it was a combination Geiger-radar-rocket-fire control unit which detects atom-bomb bearing planes and directs robot missiles at them automatically!

Thus begins a new chapter in the fantastic history of the secret war weapon—a history that goes back almost to the beginning of time. Probably the original story about a secret weapon made the rounds shortly after a man discovered that a large rock could kill an enemy.

Any competent sociologist might have concluded that the atom bomb

Cosmic death rays, aimed from the tops of the tallest buildings, destroy enemy planes and even whole enemy cities many miles away.

What you should know about the

NATIONAL PLAN

for CIVIL DEFENSE

and DEFENSE MOBILIZATION

★ ★ ★

Executive Office of the President
OFFICE OF CIVIL AND DEFENSE MOBILIZATION
December 1958

(Reprinted March 1959) MP-7

FINAL DRAFT
November 7, 1963

~~TOP SECRET~~

SANITIZED
E.O. 12958, Sec. 3.6
NLJ 97-83
By dcn, NARA Date 2-27-98

MEMORANDUM FOR THE PRESIDENT

SUBJECT: National Deep Underground Command Center as a Key FY 1965 Budget Consideration (U)

A continuing examination of the problems associated with providing an adequate national command and control structure to meet contingencies that might occur in the 1970-1975 time period prompts serious consideration of the construction of a Deep Underground Command Center (DUCC) in the Washington area.

As you know, the currently projected Washington Command and Control Complex consists of the National Military Command Center (a soft installation in the Pentagon), the Alternate National Military Command Center at Ft. Ritchie, Md. (being hardened to withstand [redacted] of overpressure), the Emergency Airborne Command Post, the Emergency Command Post Afloat and [redacted] Studies indicate that the fixed facilities of this complex and their communications could be eliminated with reasonably high probability by a small number (6-10) of 10 megaton weapons, resulting in only the aircraft and the ship surviving. The aircraft, operating on ground alert at Andrews, would require 10 to 15 minutes to become airborne and another 10 minutes to fly beyond the lethal range of a 50 MT weapon if airburst over Andrews. The ship is 30 to 60 minutes flying time from Washington. Both times are in excess of the upper limit of expected tactical warning. Projected improvement in enemy weapons size and delivery means (sub-launched missiles) will further shorten this time. These considerations create serious doubt that currently projected facilities are keyed to today's threat, much less the threat of the 1970's, or that they adequately provide for protection of top civilian and military leaders who would be required to make and disseminate high level decisions in an emergency.

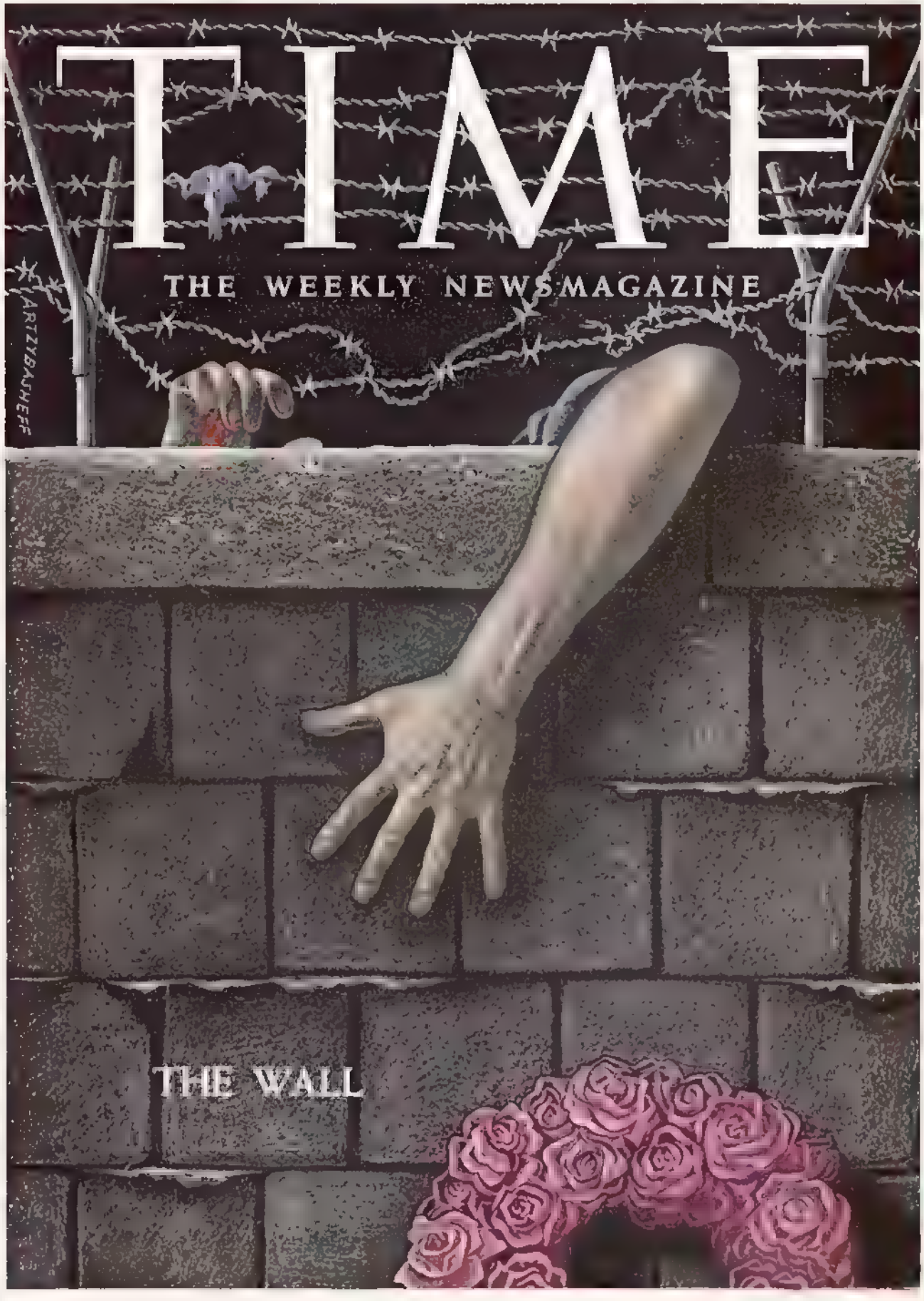
Studies of deep underground structures and analysis of weapons test data indicate that it is feasible to design and construct a command facility at depths of about 3,500 ft. so that it will withstand multiple direct hits of 200 to 300 MT weapons bursting at the surface or 100 MT weapons penetrating to depths of 70-100 feet. Extrapolation of weapons technology predicts that such weapons represent the upper practical limit to be credited to the enemy in the mid-1970's.

REPRODUCTION OF THIS DOCUMENT IN WHOLE OR IN PART IS PROHIBITED EXCEPT WITH PERMISSION OF THE ISSUING OFFICE

EXCLUDED FROM AUTOMATIC REGRADING: DOD DIR 5200.10 DOES NOT APPLY

~~TOP SECRET~~

TIME
THE AZINE
Robert Vickrey


TIME
THE WEEKLY NEWSMAGAZINE
ARTZYBASHEFF
THE WALL

TIME

THE WEEKLY NEWSMAGAZINE

STRATEGIC AIR COMMANDER LEMAY

For the Sunday punch, a daily windup.

(Background for War)

HIGH VOLTAGE MELODRAMA!

THE WOMAN ON PIER 13

STARRING

LARAINE DAY
ROBERT RYAN
JOHN AGAR

WITH THOMAS GOMEZ • JANIS CARTER

Executive Producer SID ROGELL • Produced by JACK J. GROSS

Directed by ROBERT STEVENSON • Screen Play by Charles Grayson and Robert Hardy Andrews

RKO RADIO

NAMELESS, SHAMELESS WOMAN!

TRAINED IN AN ART AS OLD AS TIME! She served a mob of terror and violence whose one mission is to destroy! Trading her love... yielding to men that invite disaster, destroy...then—KILL!

I MARRIED a Communist
LARAINE DAY · ROBERT RYAN · JOHN AGAR
with THOMAS GOMEZ · JANIS CARTER
Executive Producer SID ROGELL
Produced by JACK J. GROSS
Directed by ROBERT STEVENSON

TIME
THE WEEKLY NEWSMAGAZINE

DICTATOR STALIN
In death's shadow a fight for power.

TIME

THE WEEKLY NEWSMAGAZINE

TEST PILOT BRIDGEMAN

Beyond the sound barrier, a heat thicket.

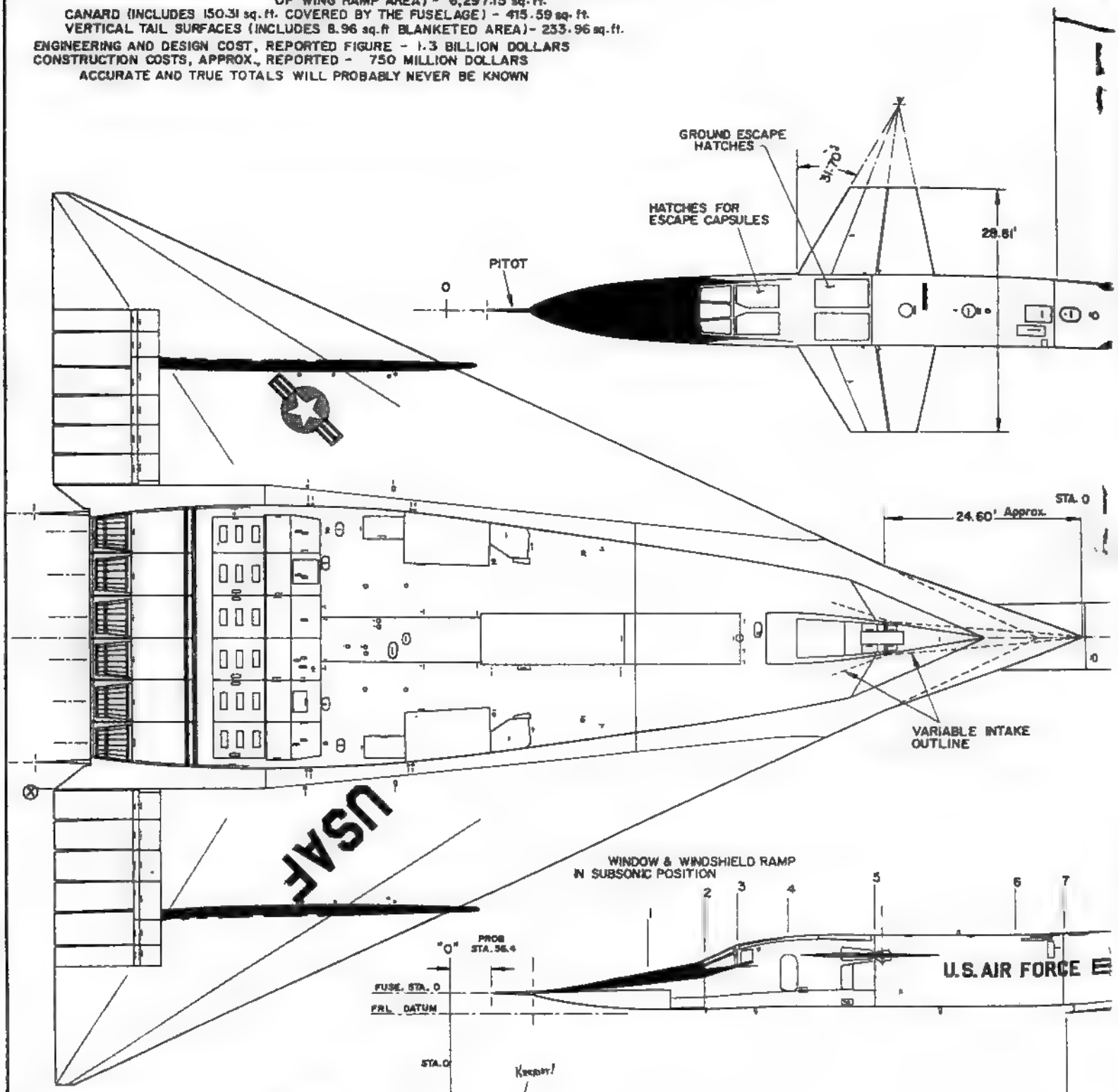
AIR FORCE CHIEF NATHAN TWINING
T'ger is a state of m'nd.

GENERAL SPECIFICATIONS AND DATA

MAXIMUM GROSS WEIGHT - 550,000 lbs.
TOP SPEED - MACH 3 (2,000 m.p.h.) AT 70,000 FEET
POWER - SIX GENERAL ELECTRIC YJ-93 TURBO JETS, 30,000 lbs. THRUST EACH
FUEL - 11 TANKS, 47,000 gals. TOTAL CAPACITY
TAKEOFF AT 500,000 lbs., 200 knots IN 7,000 feet
AT 400,000 lbs., 180 knots IN 4,000 feet
LANDING APPROACH SPEED - 270 knots
AREAS,
TOTAL WING (INCLUDES 2,482.34 sq.ft. COVERED BY FUSELAGE BUT NOT 33.53 sq.ft. OF WING RAMP AREA) - 6,297.15 sq.ft.
CANARD (INCLUDES 150.31 sq.ft. COVERED BY THE FUSELAGE) - 415.59 sq.ft.
VERTICAL TAIL SURFACES (INCLUDES 8.96 sq.ft BLANKETED AREA) - 233.96 sq.ft.
ENGINEERING AND DESIGN COST, REPORTED FIGURE - 1.3 BILLION DOLLARS
CONSTRUCTION COSTS, APPROX., REPORTED - 750 MILLION DOLLARS
ACCURATE AND TRUE TOTALS WILL PROBABLY NEVER BE KNOWN

COLORING NOTES

ENTIRE AIRCRAFT - GLOSS WHITE
ENGINE BAYS AREA - NATURAL STEEL FINISH
TIRES - ALUMINUM PAINTED
ANTI-GLARE PANEL - FLAT BLACK
TURBO JET ENGINES - BLACK
ALL LETTERING - BLACK
WING TIP FOLD FAIRING - GLOSS BLACK
NATIONAL INSIGNIA - RED, WHITE & BLUE



NORTH AMERICAN XB-70-1
"Valkyrie"
1964-69

SCALE: ORIGINAL 1:96 (1/8" = 1')
REPRO. 1:192 (1/16" = 1')
DRAWN BY - PAUL R. MATT

© HISTORICAL AVIATION ALBUM 1969
P.O. BOX 33
TEMPLE CITY, CALIF. 91780

HISTORICAL AVIATION ALBUM

DRAWING No. 7-66-G

080

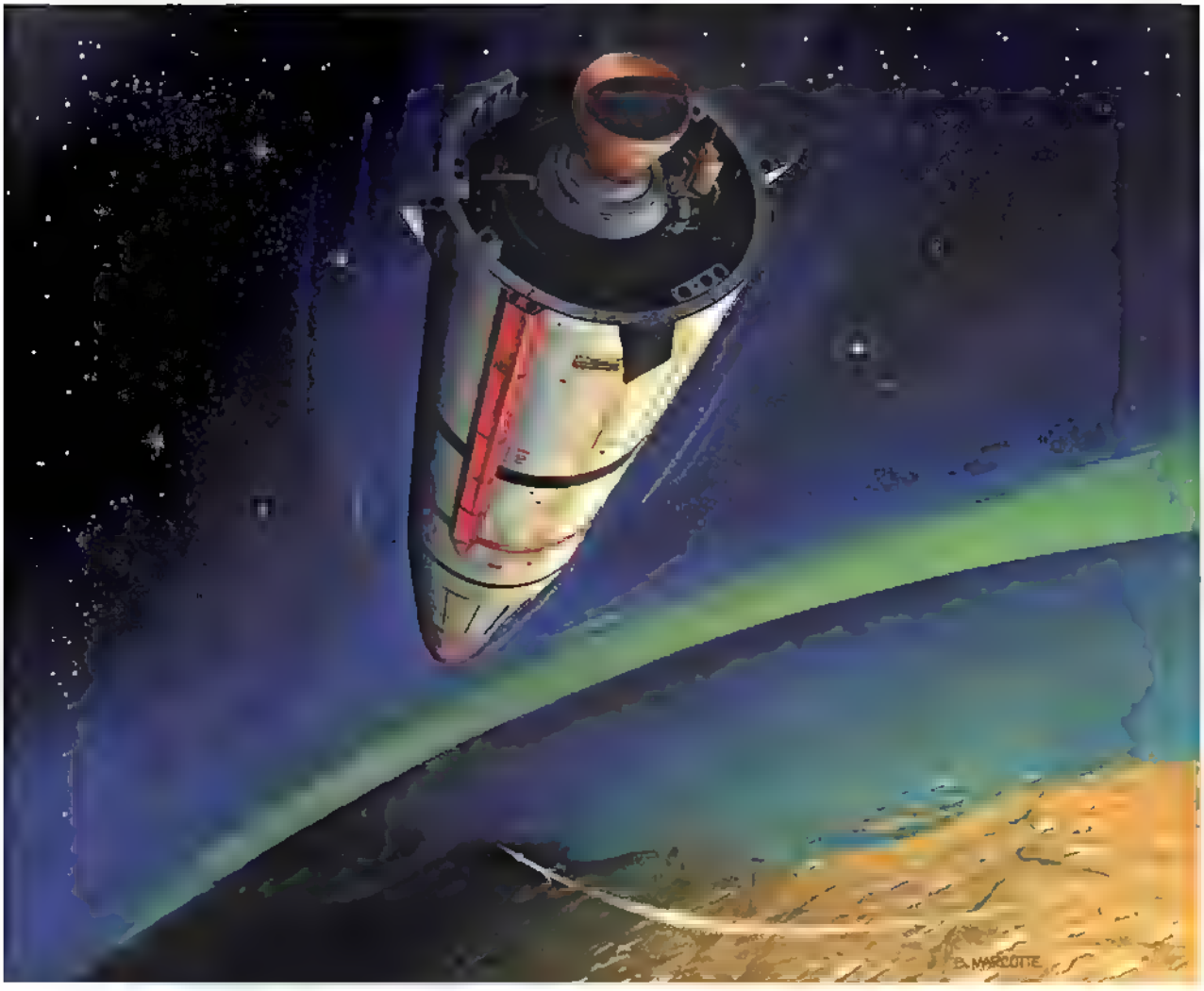
STRATEGIC AIR COMMAND

TIME

THE WEEKLY NEWSMAGAZINE

ARTZYBASHEFF

THE MISSILE



INTERCEPT!

Solar's creative missile team helps solve one of America's most vital defense problems

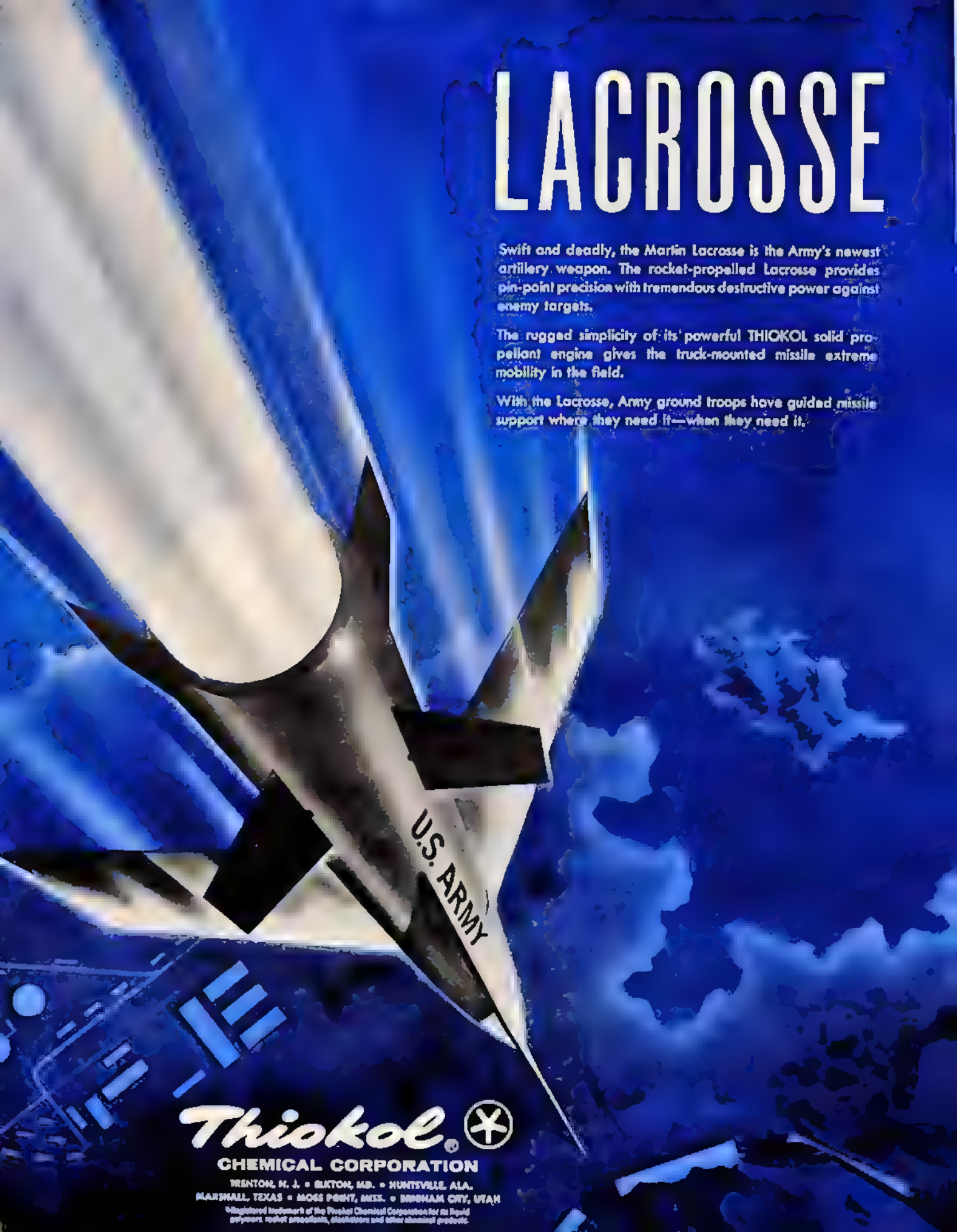
MISSILE DEFENSE involves the interception and destruction of a relatively small target travelling through space at over twenty thousand feet per second . . . within minutes after it is launched.

The government's Advanced Research Projects Agency has assigned Solar the task of working out a solution to an important part of this pressing military problem. This important new study contract, awarded as a result of a unique new approach to missile defense devised by Solar's creative weapon systems team, will require the very best engineering imagination and know-how.

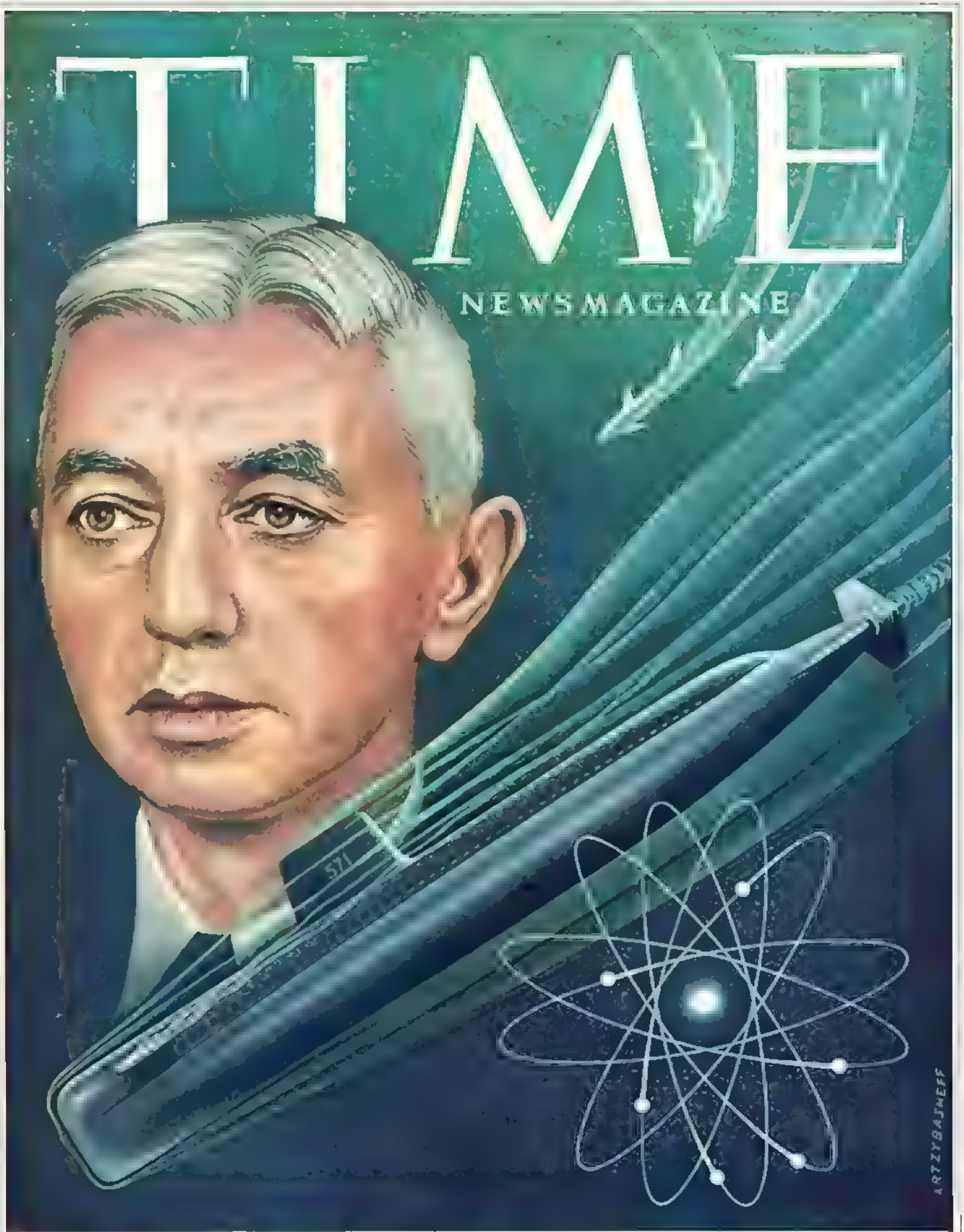
With years of active experience in the many phases of missile and space technology, Solar is particularly qualified to help solve *your* design, development and production problems. For detailed information about Solar's proven problem-solving skills, write to Dept. G-118, Solar Aircraft Company, San Diego 12, California.

ENGINEERS WANTED! Challenging projects, unlimited opportunities with Solar. Write today!

SOLAR
AIRCRAFT COMPANY
SAN DIEGO
DES MOINES


LACROSSE
Swift and deadly, the Martin Lacrosse is the Army's newest artillery weapon. The rocket-propelled Lacrosse provides pin-point precision with tremendous destructive power against enemy targets.
The rugged simplicity of its powerful THIOKOL solid propellant engine gives the truck-mounted missile extreme mobility in the field.
With the Lacrosse, Army ground troops have guided missile support where they need it—when they need it.
U.S. ARMY
Thiokol®
CHEMICAL CORPORATION
TRENTON, N. J. • ELKTON, MD. • HUNTSVILLE, ALA.
MARSHALL, TEXAS • MOSS POINT, MISS. • BRIGHAM CITY, UTAH
®Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rubber products, elastomers and other chemical products

SUPERMAN DC NATIONAL COMICS
EXPLOSIVE BATTLE ACTION
SUPERMAN DC NATIONAL COMICS
Our ARMY at WAR
NOV. NO. 4
10¢
C'MON, YOU CRAZY BUZZARD —GET OUTA THERE BEFORE THAT TANK BLOWS!
"The LAST MAN"

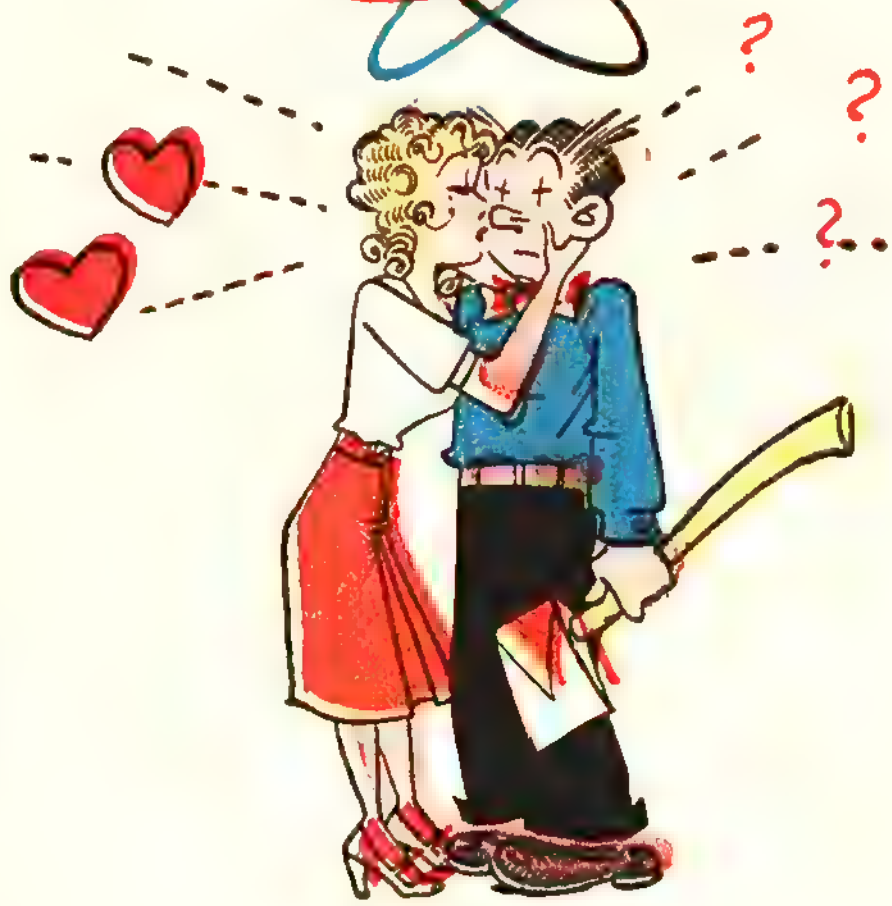


ATOMIC SUBMARINE'S ADMIRAL RICKOVER

In sea power, another revolution.

Saab J 35D Draken of the Royal Swedish Air Force

DAGWOOD SPLITS the ATOM!

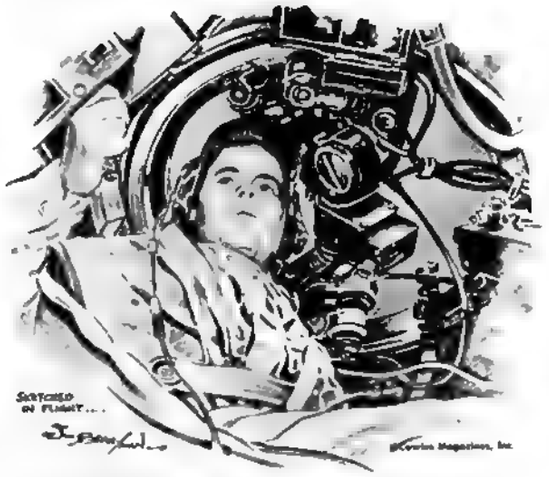


Prepared by King Features Syndicate and Puck, The Comic Weekly, to assist you in understanding the atom.

PRINTED IN U.S.A.

PRODUCED BY EDUCATIONAL DIVISION OF KING FEATURES SYNDICATE INC.

Copr. 1949, King Features Syndicate, Inc.,



Fire Control Chief Albert J. Kitchen directs from this single central position the fire of all thirteen .50 caliber machine guns.

An attacking fighter is shown in sighting device of central fire control chief. A plane caught inside the white dots is counted a "dead duck."

They don't want to drop it but they can—with precision

They don't want to have to drop the "killer." But if it becomes necessary, they know how to do it with grim and deadly precision.

There were five officers and six sergeants on "my" flight. Between them, they have 19 children.

Our atomic commander was Major McKee. He hails from California, Mo., and is the father of three daughters. Eleven years in service, he flew 140 missions over the "hump," in the Himalayas, between Burma and China in the last war.

He got out of the Air Force in 1946 and ran an insurance and real estate business in his home town until he felt he had to go back to a job where he was needed. Tall, blond, he modestly describes his duties as "more or less that of a shop foreman co-ordinating and supervising the activities of all the specialists."

The wing commander, Lt. Col. Stengele, from San Antonio, Tex., has ten years in the service with 25 missions behind him. He can, and does, board the planes in his wing, without notice, to evaluate his crews.

Capt. Timothy, of Chicago, Ill., the bombardier-navigator, has been in the service nine years, flown 33 combat missions. He has two daughters and a son.

"Mr. Atomic," the radar navigator, Maj. Sharpe, from Moran, Tex., has no combat time. He was an instructor. He is a little, smiling fellow, almost bald. His equipment weighs more than he does.

The flight engineer, Lieutenant Bare, from Ronceverte, W. Va., has one daughter and has served 10 years in the Air Force.

One of the crew members, the central fire-control chief, Albert J. Kitchen, was an engineer-technician at the Los Alamos atomic weapons project for three years. As central fire control chief, he directs the electronic firing of thirteen .50 caliber machine guns to protect the A-bomb he had a part in building. He is also the "ship's doctor," a graduate of all the courses in first-aid techniques.

This is a "select" crew. The groundlings, and other airmen, gaze on them with open awe and admiration. These airmen work their heads off. They are on grueling duty sometimes for 36 hours. Then they get 24 hours off and are back at it again. They move from base to base, for the Air Force has decided it will not be Pearl Harbored. There is no great concentration of atomic bombers or atomic bombs at any one spot.

To sum up, Col. Stengele remarked that "Every member of a select crew has to be a select man. . . . The atomic bomber is no stronger than her least-trained man."

Once back on the ground, I began to think about the things I had learned. The tremendous size and weight of this particular 1951 version of the bomb had amazed me. It makes the Nagasaki-Hiroshima jobs as obsolete as the Stanley Steamer. "Just toy balloons in comparison," said one atomic bomber. We are also told there are more powerful ones to come.

Now, I don't want to get into an argument with the air experts. Maybe they think they

Look Reports

Release of the A-bomb over the target rids the plane of its five-ton burden. The electronic-discharge mechanism has aimed it at target X, possibly a Russian city. Then the plane spurts forward and wheels for home. When the bomb explodes over the target, the big ship will be four to five miles away. This is considered a safe margin even if the plane were bombing at low altitudes. On a long mission, the bomber then would head for a refueling point to take on fresh gas in the air.

Jim Berryman, cartoonist of the Washington *Star*, whose dramatic story of an A-bomb mission is told here in his drawings and text, follows in the footsteps of a famous father. He is the son of the late Clifford K. Berryman, loved and respected cartoonist for the *Star* for nearly half a century. The Berrymans, father and son, were not only both winners of the Pulitzer Prize, but both presidents of Washington's famed Gridiron Club of writers and cartoonists. Jim Berryman is 1951 president of the club which satirizes public officials at two large dinners each year. He has been a magazine illustrator and writer specializing in the popular presentation of technical subjects and has made drawings for the Navy as well as the Air Force.

GEORGE BURNS

The aircraft warning center holds a practice session at Albany, N. Y. As spotters' reports are plotted, the balcony crew relays target courses to the Air Force.

From now on, any day, any hour may bring the CONDITION RED warning, and the first enemy atom bomb dropped on us. What will you do? Can you and your family survive? Here's an authoritative report on

The Grim Truth About Civil Defense

By STEWART ALSOP and DR. RALPH E. LAPP

ABOUT THE AUTHORS

Stewart Alsop, the well-known Washington columnist, is considered an authority on atomic warfare. Dr. R. E. Lapp, a nuclear physicist, was executive director of the Research and Development Board (in atomic energy) under Dr. Vannevar Bush in 1948–49. He also served as head of nuclear physics for the Office of Naval Research. He wrote Must We Hide?, an authoritative book on atomic defense. —*The Editors.*

FIRST OF TWO PARTS

LAST December sixth, a tense meeting of the Joint Chiefs of Staff was in progress at the Pentagon. The meeting was tense for an obvious reason. Only a few days before, the Chinese communists had launched their overwhelming offensive against our troops in Korea. This could be interpreted as a sign that the Kremlin was now ready to risk all-out war with the United States.

Suddenly the meeting was rudely interrupted by an excited underling. The Pentagon message center had received word over the "hot line" from Mitchel Field that forty unidentified planes had been picked up on the radar screens. The planes were approaching the northeast coastline of the United States.

The meeting of the Joint Chiefs hurriedly broke up. There seemed little reason to doubt that the forty planes were atom-bomb-carrying Soviet long-range bombers, and that this was the beginning of the third World War. The preliminary CONDITION RED signal was flashed to the Continental Air Command and to key defense installations. Simultaneously, the White House was warned over the special line to make ready for an atomic attack. Immediately a number of secret-service and other White House officials went down to the underground White House shelter to make sure that all was in readiness for President Truman.

Here the story of what happened on December sixth, up to this point like a grimly realistic rehearsal of things to come, collapses into anticlimax

Sure, America's going ahead...

if we all pull together!

Let's compare *yesterday* with *today* . . . that will give us an idea of what tomorrow can be!

Machine Power: Since 1910 we have increased our supply of machine power *4½ times.*

Production: Since 1910 we have more than *doubled* the output each of us produces for every hour we work.

Income: Since 1910 we have increased our annual income from less than $2400 per household to about $4000 (in dollars of the same purchasing power.)

Work Hours: Yet, since 1910 we have cut 18 hours from our average workweek — equivalent to two present average workdays.

HOW have we succeeded in achieving all this? Through the American kind of teamwork! And what is *teamwork?*

American teamwork is management that pays reasonable wages and takes fair profits—that provides the best machines, tools, materials and working conditions it possibly can—that seeks new methods, new markets, new ideas; that bargains freely and fairly with its employees.

Our teamwork is labor that produces as efficiently and as much as it can that realizes its standard of living ultimately depends upon how much America produces—that expects better wages as it helps increase that production.

Teamwork is simply working together to turn out more goods in fewer man-hours—making things at lower costs and paying higher wages to the people who make them and selling them at lower prices to the people who use them.

What we've already accomplished is just a foretaste of what we *can* do. It's just a start toward a goal we are all striving to reach: better housing, clothing, food, health, education, with ever greater opportunities for individual development. Sure, our American System has its faults. We all know that. We still have sharp ups and downs in prices and jobs. We'll have to change that—*and we will!*

It will continue to take *teamwork*, but if we work together, there's no limit on what we can all *share together* of even greater things.

What we have already accomplished is just a foretaste of what we *can* do—if we continue to *work together!*

Approved for the PUBLIC POLICY COMMITTEE *of The Advertising Council by:*

EVANS CLARK	BORIS SHISHKIN	PAUL G. HOFFMAN
Executive Director	Economist	Formerly President
Twentieth Century Fund	American Federation of Labor	Studebaker Corp.

CONTRIBUTED BY THIS MAGAZINE AS A PUBLIC SERVICE

in co-operation with the Magazine Publishers of America

WANT TO HELP? MAIL THIS!

PUBLIC POLICY COMMITTEE
THE ADVERTISING COUNCIL, INC.
11 West 42nd Street, New York 18, N.Y.

Please send me your free booklet, "The Miracle of America," which explains clearly and simply, how a still better living can be had for all, if we all work together.

Name_____

Address_____

_____

Occupation_____

RESTRICTED
CONTAMINATED
AREA
WARNING !!!!
DO NOT GO BEYOND THIS POINT!
DANGEROUS RADIOACTIVE
SATURATION
SCHMUTZ

KHRUSHCHEV ATTACKS THE U.S.

TIME

THE WEEKLY NEWSMAGAZINE

THE COMMUNIST . . . How He Operates

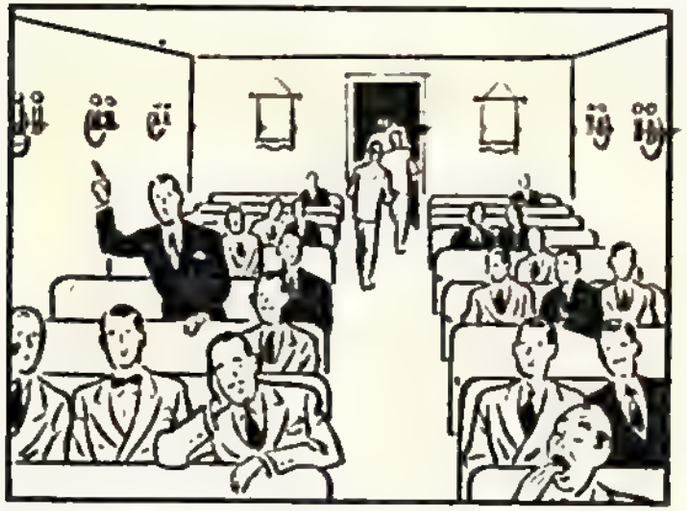
In its operation, the Communist Party shows many characteristics of the secret police organizations which developed in Napoleon's time and reached their full growth in the German Gestapo and Russian Ogpu of modern times.

The basic unit of organization—whether in Paris, Belgrade or Peoria, U. S. A.—is the "cell." Cells are made up of three to 10 card-holding members who know and trust each other and work closely together.

If their job is, for example, to seize control of a union by "boring from within," either an existing cell will be assigned to the task or a few members already within the union will be organized as a cell. This group may broaden out to include fellow-travelers and sympathizers. But the well-disciplined core never surrenders its identity nor genuinely merges with the

To seize control of a union by "boring from within," a few Communists already in the union form a "cell." They meet secretly, lay careful plans.

Before an election, the cell members work quietly to line up union sympathizers who don't realize they're playing into the Communists' hands.



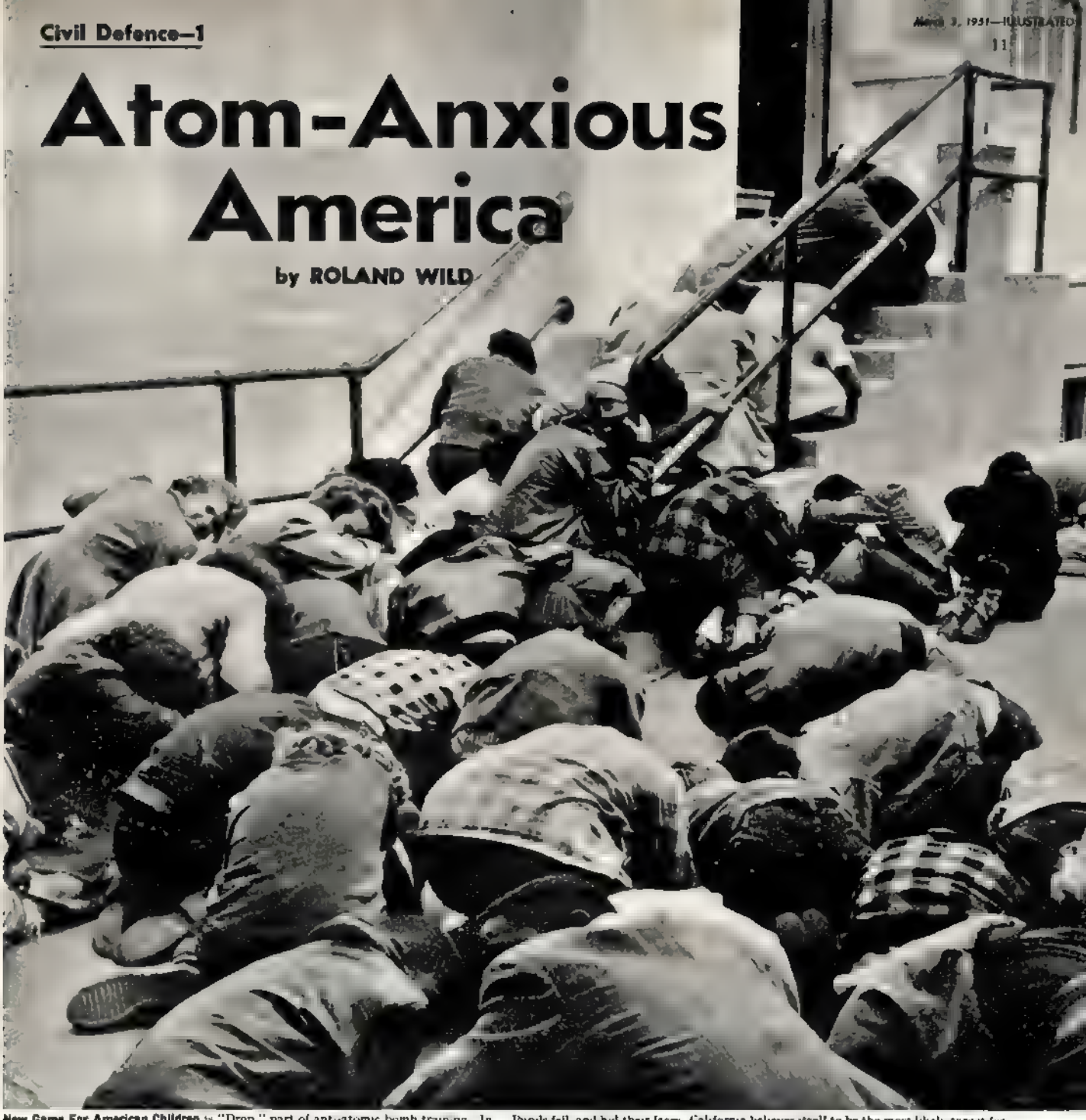
During the election, the Communists argue and stall until non-Communists get tired, go home. Their slogan is, "wear out and win out."

They stall and confuse issues until another group will make a deal for their support. The Communists' price is a number of key offices.

If the coalition wins, the Communists shrewdly let a non-Communist hold the "front" job; but they hold the behind-the-throne power.

Atom-Anxious America

by ROLAND WILD



New Game For American Children is "Drop," part of anti-atomic bomb training. In this Los Angeles school a bell rang without warning, to signify a surprise attack. Pupils fell, and hid their faces. California believes itself to be the most likely target for attack. Governor Warren has forecast 100,000 casualties in Los Angeles from one bomb.

The United States has begun in earnest to organize for civil defence. At first there was a tendency not to take it seriously, but now the ordinary American has decided that his life may depend on being prepared

KATHY DIMITRO, a pleasant little girl of seven, who, being half Greek and half Irish, was a good American citizen, leaped happily from her school desk in the middle of a lesson and raced downstairs to crouch in the hall, her head buried in her arms and her skirt lifted over her face. The ringing of the school bell had brought down also her neighbours in class—Italian and Negro and Chinese and German—all of whom thought it was a pleasant enough interruption. For two minutes they knelt silently in the big school hall.

Kathy was playing America's newest and grimmest game, "Drop." The rules were laid down by the United States Government's bible on civil defence, *You Can Beat the A-Bomb*, as locally interpreted by the school board.

Kathy, kneeling on the floor with her head under her dress, was no special problem to the people who are planning the defence of the civil population against the effects of the A- or H-bomb, for she was willing to do what she was told without having political opinions about it. The rest of the United States, however, in this year of the Great Alarm, is inclined to make this, like many other chapters of American history, the biggest, fastest, most grandiose epic in the world. It was involving millions of words of advice and millions of dollars on administration, some frantic digging of holes in the ground, signing up of amateur plane-spotters and fire wardens, and a hasty routing out of old tin hats.

Kathy knew none of this, but even some parents of children now lying on the floor made an issue of this very exercise with Dr. John Abbott, chief co-ordinator of defence in the schools, and with George McCoy, vice-principal, and Mrs. Gertrude Smith, a director. Dr. Abbott said: "Some parents actually asked why we should teach children the meaning of war in this way. 'Why not teach them about peace?' they asked."

PHOTOGRAPHED BY JOE PAZEN

OVER

Republic F-84F Thunderstreak of No 10 Fighter Wing, Belgian Air Force

USAF
9231

1
2
3
4
5
6

510

compared with F-80's 580. Armament differs. F-80 carries four 20-mm. cannon, rockets, bombs. MiG totes one 32-mm. cannon, two 12.7-mm. machine guns, rockets, bombs.

MiG stands for designer team of Artem Mikoyen (inset), Mikhail Gurevich.

gines enclosed in each of two nacelles, is not operational in U. S. Air Force. Russian plane, carrying crew of five, is reported in squadron strength. Design was observed as early as 1947.

Il is symbol for Designer Sergei Ilyushin. His best known plane, Il-2 Stormovik, was awarded prize.

Armament is similar: four 20-mm. cannon, plus rockets or bombs. La-16 is a modernization of German Me-362 fighter that was on drawing boards when Nazis capitulated.

La stands for Semyon Lavochkin, designer of plane that won air command over Stalingrad.

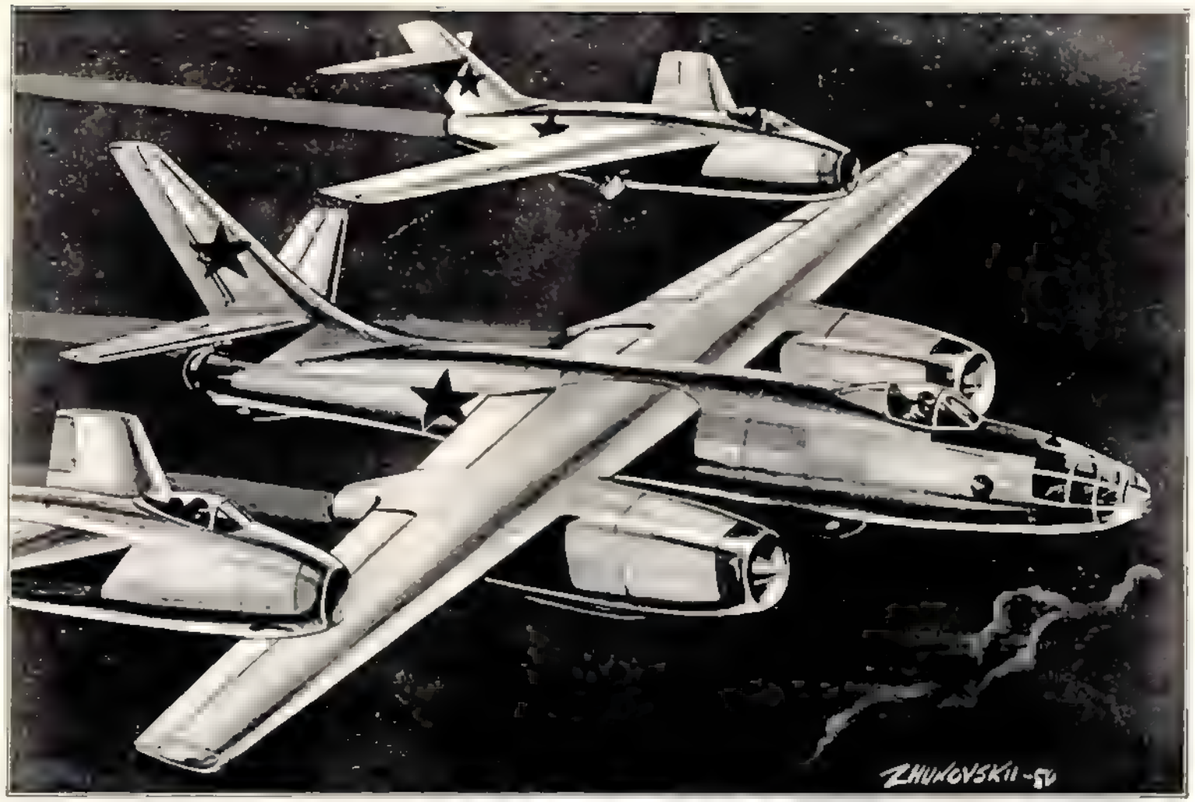
THE MIG-15, SOVIET FIRST-LINE FIGHTER NOW IN ACTION IN KOREA

This 'plane won the Stalin Prize of 1947. The U.S. F-86 Sabre disputed its claim to be the fastest in the world. A single-engined turbo-jet high altitude interceptor in the 650 m.p.h. class. The drawing shows the pilot-ejecting device in action. But this device has probably been done away with recently to save 200 pounds in weight. Wing-span 35 ft. 6 in., fuselage length 40 ft. 2 in. Engine: Soviet version of British 'Nene' engine. Two 32-millimetre rapid-fire cannon.

SECRETS OF RUSSIA'S FIGHTING PLANES

World Copyright by New York Herald Tribune Inc.

ESTIMATES of Russian Air Power, like many things Russian, have only just become usefully speculative as opposed to purely fantastic. Information from secret sources, combined with the limited knowledge obtained from air warfare in Korea, has made it possible to piece together some sort of comparative analysis of the relation between the air forces of Russia and the Western Powers. In sheer numbers, the Soviet force is believed to be easily the largest in the world, with a total front-line strength of 19,000 operational aircraft. These are distributed between three main areas. In the West, about 9,000. In the Middle East, about 5,000. In the Far East, about 5,000. In Korea, the Soviet jet fighter, the MiG-15, has been outscored by the U.S. F-86 Sabre, but evidence is inconclusive. In any case, the Soviet holds in reserve two ace fighters, the Yak 25 and the La 16 (a twin-jet night interceptor). The Russians learned much about aircraft design from German 'planes captured during the last war, but American experts maintain that the "gap remains broad between Soviet and American heavy bombers." In this category, too, they are building up an efficient long-range atom-bomb-carrying strategic force of Tu-72s of global range. The Tu-72 is a pretty faithful copy of the American B-29—three of which made forced landings in Siberia in 1945. What of the pilots? "From a morale standpoint," says the *New York Herald Tribune*, "they are rough, tough, and supremely self-confident."



A TU-10 TACTICAL JET-BOMBER, ESCORTED BY YAK 25 FIGHTERS

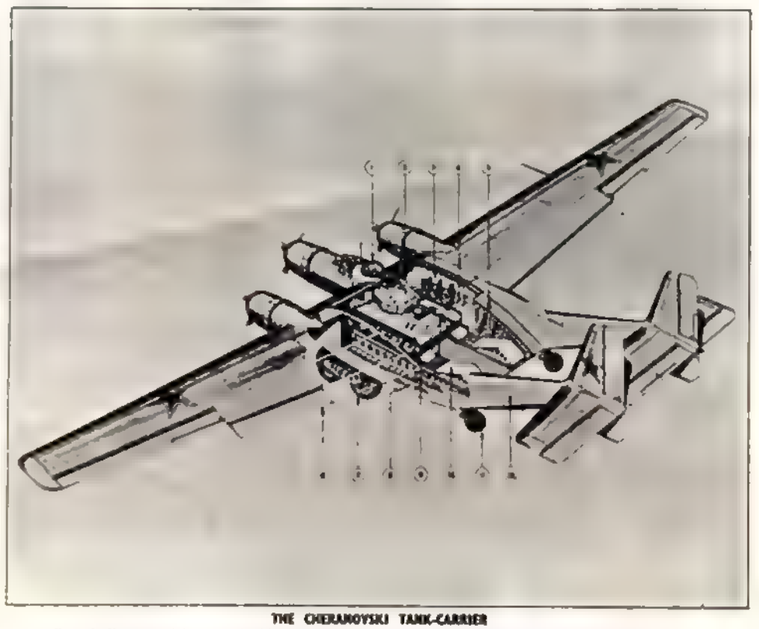
One of a formidable stable of short-range bombers. Russia, like Germany (from whom she borrowed many of her ideas and designs) concentrates on tactical bombers almost as much as on fighters. The exact performance of the Tu-10 (powered by two axial-type Lulilik engines) is not known. But Soviet fighters with speeds around 600 m.p.h. had difficulty in keeping up with it. Nearest thing to the English Electric Canberra. Wing-span 65 feet. Yak 25 is Soviet ace fighter, said to outspeed MiG-15 by 30 m.p.h.

THE BRATUKIN OMEGA III

The latest Soviet helicopter. Twin-engined, twin-rotored military transport carrying 32 passengers. Length of fuselage, 55 feet. Engines: 2,000 h.p. each.

THE PE4 (PERHAPS)

Long-distance observation 'plane. Tentatively identified as Pe4. Very like Focke-Wulf 189. Sometimes used by Soviet navy to carry small torpedo.



THE CHERANOVSKI TANK-CARRIER

Key: 1, Upper and lower twin 20 mm-cannon turrets; 2, Anchored T.34 medium tank; 3, Inward-facing bench, for tank and handling crew; 7, Fixed, heavy-duty main undercarriage; 8, Jet-assist rockets for short take-offs; 11, Twin tailwheels. Wing-span 160 feet. Three 3,500 h.p. radial engines.

"THEY TOOK DOWN ALL THE CRUCIFIXES AND PUT A U.S.S.A. FLAG IN THEIR PLACE."
COMMUNISM IS THE ANSWER TO ALL THE WORLD'S PROBLEMS. IT WILL BRING YOU A HEAVEN ON EARTH IN WHICH EVERYONE WILL BE HAPPY.

AS FOR THE SOUL, GOD, IMMORTALITY----THEY DO NOT EXIST. MAN HAS NO SOUL! THERE IS NO LIFE HEREAFTER. THOSE WHO BELIEVE IN COMMUNISM ARE GOOD. THE REST WILL BE DONE AWAY WITH.

OUR CHIEF ENEMY IS THE UNITED STATES, WHICH HAS ATOMIC WEAPONS, JUST AS WE HAVE. WE CANNOT FIGHT AN ALL-OUT NUCLEAR WAR AGAINST THEM UNLESS WE ARE SURE OF WINNING. PERHAPS THAT DAY WILL SOMETIME COME...
...IN THE MEANTIME WE MUST TRY TO WIN THE MINDS OF MEN BY OTHER MEANS. IF WE CAN CONQUER MORE LANDS BY "SMALL" WARS IN WHICH ORDINARY WEAPONS ARE USED, WE WILL DO SO...
"...BUT OUR MOST IMPORTANT BATTLE MUST BE FOUGHT FOR PEOPLE'S MINDS..."
"...WE MUST CONVINCE THE WORLD THAT COMMUNISM IS ITS SAVIOR!"
IF WE CAN DO THAT, WE CAN WIN THE WORLD WITHOUT FIRING ANOTHER SHOT!

WE HAVE SEEN IN THIS SERIES OF STORIES THE WAY IN WHICH RUSSIA'S LEADERS HAVE FOLLOWED THE TEACHINGS OF MARX AND LENIN. BEHIND THEM, THEY HAVE LEFT A BLOODY TRAIL.
THEIR METHODS ARE VERY CHANGEABLE. TO THOSE WHO WILL LISTEN TO TALK OF PEACE, THEY WILL TALK OF PEACE. TO THOSE WHO WILL FALTER BEFORE THREATS OF WAR, THEY WILL THREATEN WAR. BUT BEHIND ALL THIS TALK IS ONE GOAL: WORLD DOMINATION BY ANY MEANS.
CULTURE
TREATY
IN ITS WAKE, COMMUNISM HAS LEFT A TRAIL OF MURDERS, LIES, AND MISERY OF A KIND NEVER BEFORE SEEN IN THE HISTORY OF THE WORLD. IT IS TRULY THE WORK OF THE DEVIL.

Supplied by air transport alone, 2½ million Berliners sample a new way of life

• In today's diplomatic Battle for Berlin, hope for democracy is being kept alive for millions in Western Europe by the U. S. Air Force.

Flying Douglas aircraft almost exclusively, Yankee crews have poured over half a million tons of supplies into Berlin since last June. This impressive feat has strained to the limit our resources in air transport. *It has shown why cargo planes in sufficient numbers must be considered essential to any modern military defense program.*

Needed—and desperately—are larger, faster types of aircraft designed exclusively for air transport. And to meet this need, Douglas is now building the giant Douglas DC-6A. Able to fly 30,000 lb. loads at 300 mph, the DC-6A will make available to the military services a cargo transport of *rugged dependability*, capable of supplying world-wide bases in any kind of national emergency.

DOUGLAS

SERVING MANKIND AROUND THE WORLD

DOUGLAS AIRCRAFT COMPANY, INC.

Peace is America's Most Important Business!

You can be proud of your new Army . . .

An Army of Specialists—strong, resourceful—advancing science, fitting men for new and satisfying careers.

An Army of Opportunity . . . where leadership, initiative, ability are required, recognized, rewarded.

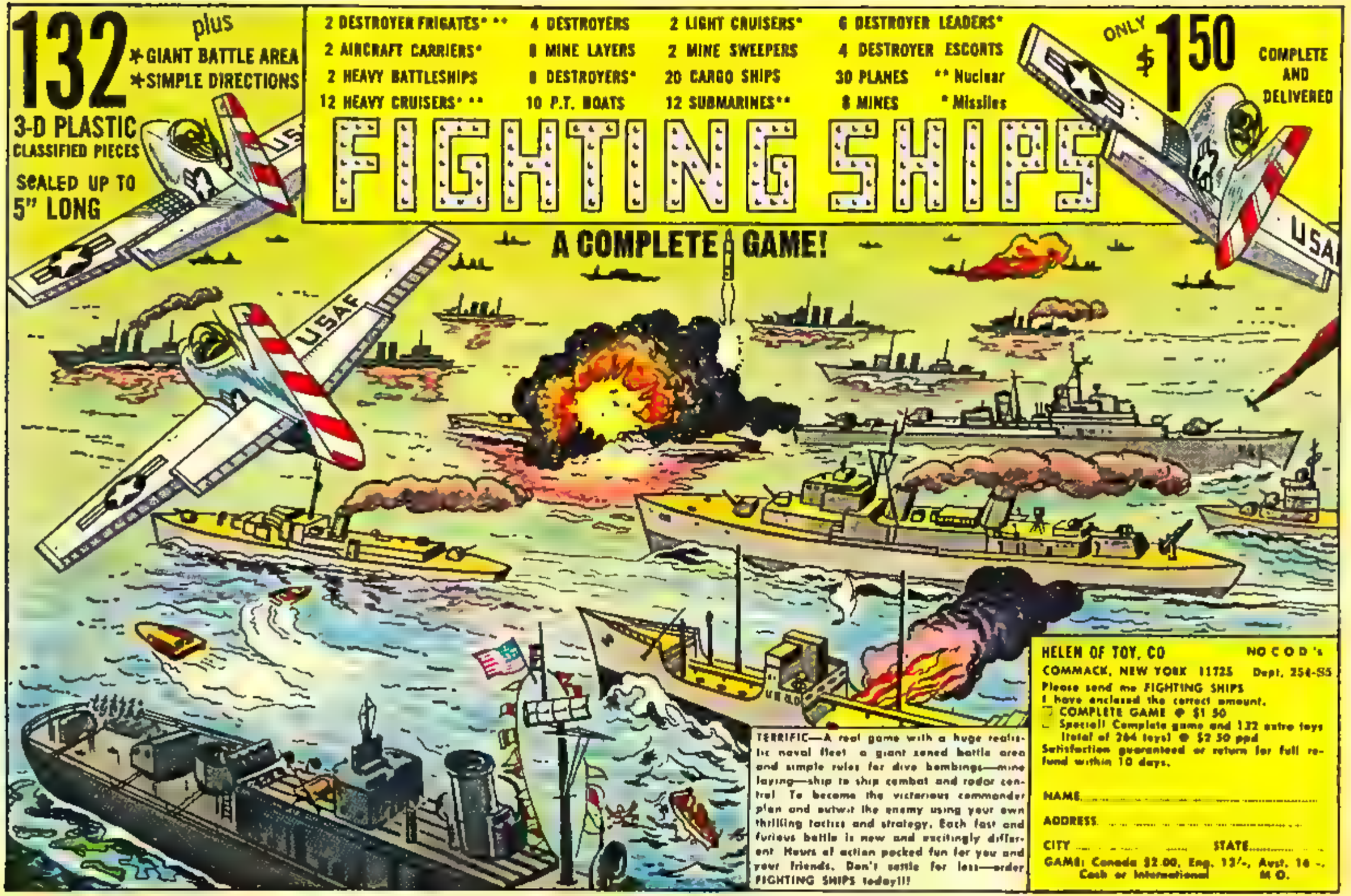
An Army with One Great Purpose . . . PEACE!

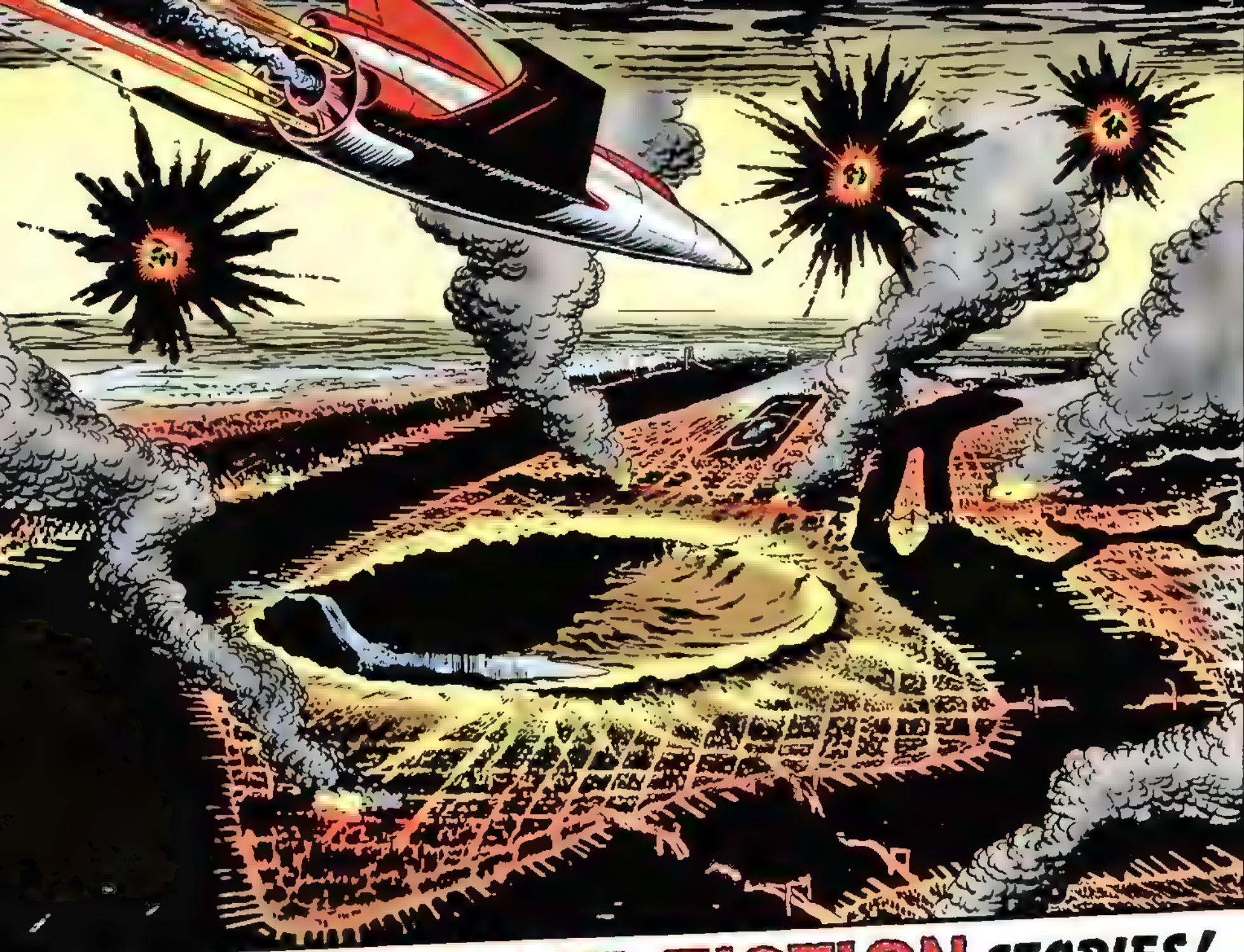
There is opportunity for every young man in the new U. S. Army. You can get full details at any U. S. Army and U. S. Air Force Recruiting Station.

The U. S. Army—Part Of The Team—For Security

Army Day-April 6

Know your new Army better. Visit your nearest Army post, camp or station.


132 plus
*GIANT BATTLE AREA
*SIMPLE DIRECTIONS
3-D PLASTIC CLASSIFIED PIECES
SEALED UP TO 5" LONG
2 DESTROYER FRIGATES* **
2 AIRCRAFT CARRIERS*
2 HEAVY BATTLESHIPS
12 HEAVY CRUISERS* **
4 DESTROYERS
8 MINE LAYERS
8 DESTROYERS*
10 P.T. BOATS
2 LIGHT CRUISERS*
2 MINE SWEEPERS
20 CARGO SHIPS
12 SUBMARINES**
6 DESTROYER LEADERS*
4 DESTROYER ESCORTS
30 PLANES
8 MINES
** Nuclear
* Missiles
ONLY $1.50 COMPLETE AND DELIVERED
FIGHTING SHIPS
A COMPLETE GAME!
USAF
USA
TERRIFIC—A real game with a huge realistic naval fleet a giant zoned battle area and simple rules for dive bombings—mine laying—ship to ship combat and radar control To become the victorious commander plan and outwit the enemy using your own thrilling tactics and strategy. Each fast and furious battle is new and excitingly different Hours of action packed fun for you and your friends. Don't settle for less—order FIGHTING SHIPS today!!!
HELEM OF TOY, CO
NO C O D 's
COMMACK, NEW YORK 11725 Dept. 254-SS
Please send me FIGHTING SHIPS
I have enclosed the correct amount.
☐ COMPLETE GAME @ $1 50
☐ Special! Complete game and 132 extra toys (total of 264 toys) @ $2 50 ppd
Satisfaction guaranteed or return for full refund within 10 days.
NAME
ADDRESS
CITY STATE
GAME: Canada $2.00, Eng. 13/-, Aust. 16 -.
Cash or International M O.


INCREDIBLE SCIENCE-FICTION STORIES!
EL OSTEIN

ORIGINALS

35¢

BB

691

JET

FRANK HARVEY

Rocket-swift stories of the Air Force — on guard in a world of dazzling speed

BALLANTINE BOOKS

AN ENTERTAINING COMIC
EC
JAN.-FEB.
1951
10¢

WEIRD SCIENCE

AUTHORIZED
A C M P
COMICS TO THE COMICS CODE

WE'VE ESCAPED JUST IN TIME! THE ATOMIC WAR HAS STARTED! ALL LIFE ON EARTH WILL BE DESTROYED! NOW, WE SCIENTISTS MUST FIND ANOTHER PLANET AND BEGIN CIVILIZATION ANEW...ONE OF PEACE, NOT OF WAR!
SEE THE EARTH 500,000 YEARS AFTER THE FIRST ATOMIC WAR!
GOLDSTEIN

- FIREPROOF - WATERPROOF
- STEEL & CONCRETE CONSTRUCTION
- UNDERGROUND, BASEMENT, HOME, COMMERCIAL AND INDUSTRIAL DESIGNS
- 12" WALLS & ROOF - ATTENUATION FACTOR 13,000
- EXCEEDS CIVIL DEFENSE REQUIREMENTS

24 MODELS

LOcust 3-4388

113 S. 21 **PHILA, PA.**

Join in Civil Defence Week!

SEPTEMBER 30TH—OCTOBER 6TH

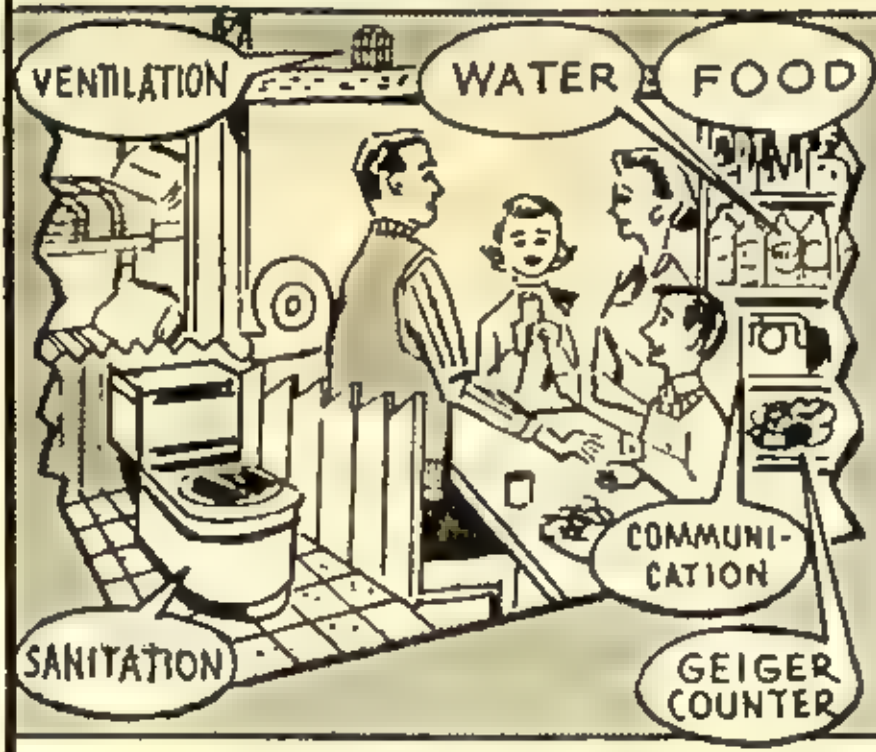
We are representatives of your local Civil Defence Division.
During National Civil Defence Week—September 30th to October 6th—we shall be on parade.
And we hope you'll come and see us.
More than that, we hope you'll feel that there's a place for you in the Civil Defence Corps.
We are always glad to welcome keen new members into all Sections. Why not join us?

ISSUED BY H. M. GOVERNMENT

COMMUNITY & PRIVATE

BLAST SHELTERS

1 TO 500 FAMILIES



LEE SERVICE INC.

MECHANICAL CONTRACTORS—ENGINEERS

40th & WALNUT STS. EVergreen 6-3800

POPULAR SCIENCE

MONTHLY

MECHANICS AND HANDICRAFT *

January, 1951 • 25¢

How Deadly Are the Russian Jets?

PAGE 90

Royal
Canadian
Air Force

WINGS OF NATO

MECHANICS · AUTOS · HOME IMPROVEMENTS

POPULAR SCIENCE

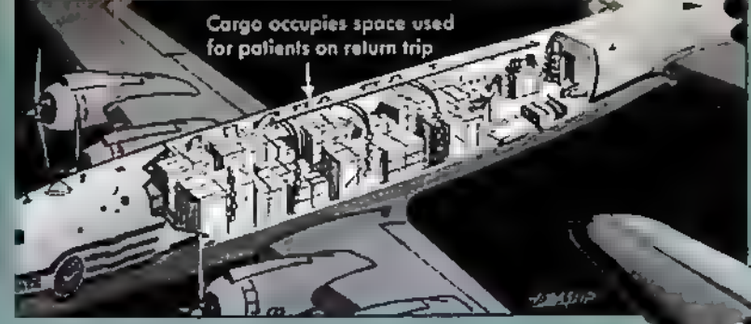
July 35c

MONTHLY

The Missile Ships We're Building

PAGE 120

Cargo Plane Becomes A Flying Hospital



Convertible C-54M serves as cargo carrier, above, or hospital plane, below.

VENTILATION

Air-conditioning system, operating on ground as well as in flight, supplies refrigerated or warmed air through outlets controlled by patients. This is first plane to provide individual ventilation for each litter space. Also, patients have individual oxygen supply

HEATPROOFING

Sunlight-reflecting white paint, wall insulation, and heat-excluding filter glass in windows keep sun from overheating cabin

PATIENTS

Litters in anti-vibration slings accommodate 32 patients, with 18½-in. clearance. Brackets permit respacing litters for more headroom when fewer patients are aboard. Electrical stretcher lift gently loads and unloads two patients at a time. It can also handle cargo, in 500-lb. lots

INSECT CONTROL

Exterior control, and pilot's control button, operate automatic insect-control system to avoid transporting disease carriers and crop pests from one country to another. System sprays insecticide from 15 nozzles into every crevice of plane before and after take-off

NURSE'S STATION

Headquarters for flight nurse and attendants has galley for preparing hot meals; medical station, with dressings, plasma, bandages, and surgical equipment, and intercommunication system linking medical and flight crews

New plane implements life-saving, morale-boosting U. S. policy of speeding wounded troops home by air rather than by water or rail.

LAST word in a flying hospital is the plane illustrated here. After serving as a cargo ship or troop transport on the outward-bound leg of a round trip overseas, this convertible type becomes an air-evacuation plane to speed sick and wounded U. S. troops back home. A fleet of 30 of the craft has just been placed in operation, most of them in the trans-Pacific airlift, by the Military Air Transport Service.

Developed from the C-54 Douglas Skymaster, aerial work horse of the MATS, the new type is called the C-54M. As a hospital plane, it accommodates 32 litter patients with unprecedented facilities and comforts. New features include greater space between litters, vibration-damping litter slings, individual air conditioning controlled by each patient, hot meals from a galley, and medications from a built-in medical section.

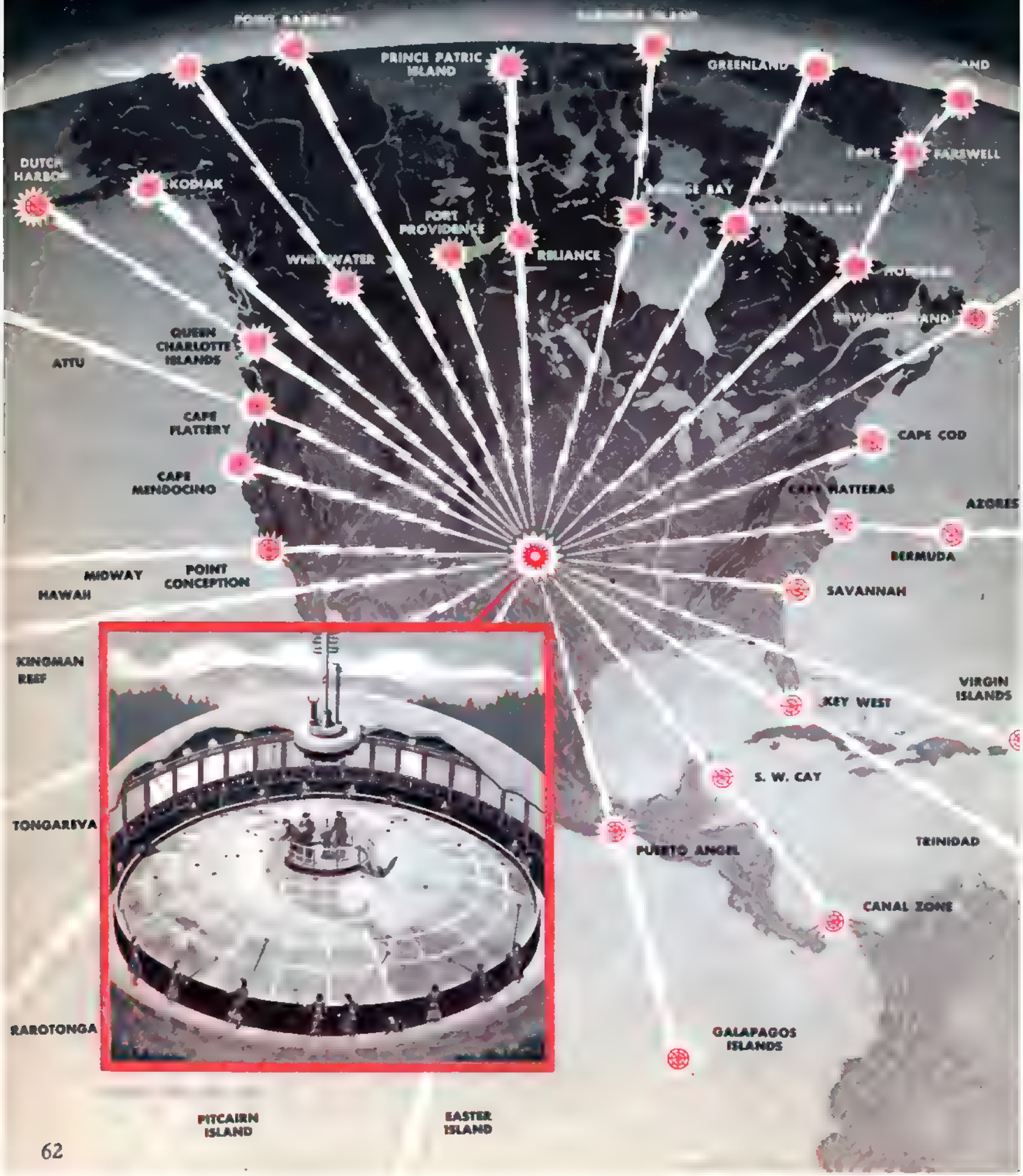
MECHANIX ILLUSTRATED

DEADLY 'SKY SNIPER' ON COMBAT RAID—
IS THIS OUR NEWEST SECRET WEAPON?

CONSTRUCT YOUR OWN CERAMIC KILN

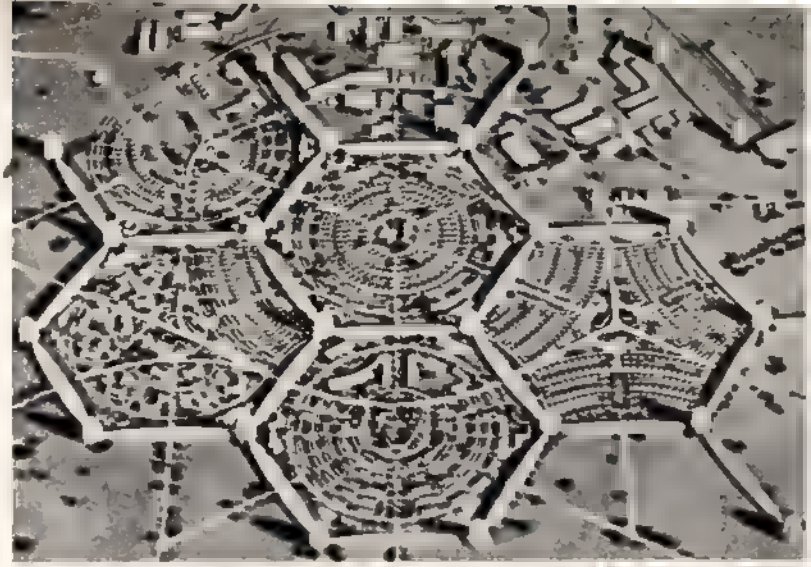
How RADAR SENTRIES

With a centrally controlled network like this, says the author, we could insure ourselves against an atom war Pearl Harbor.

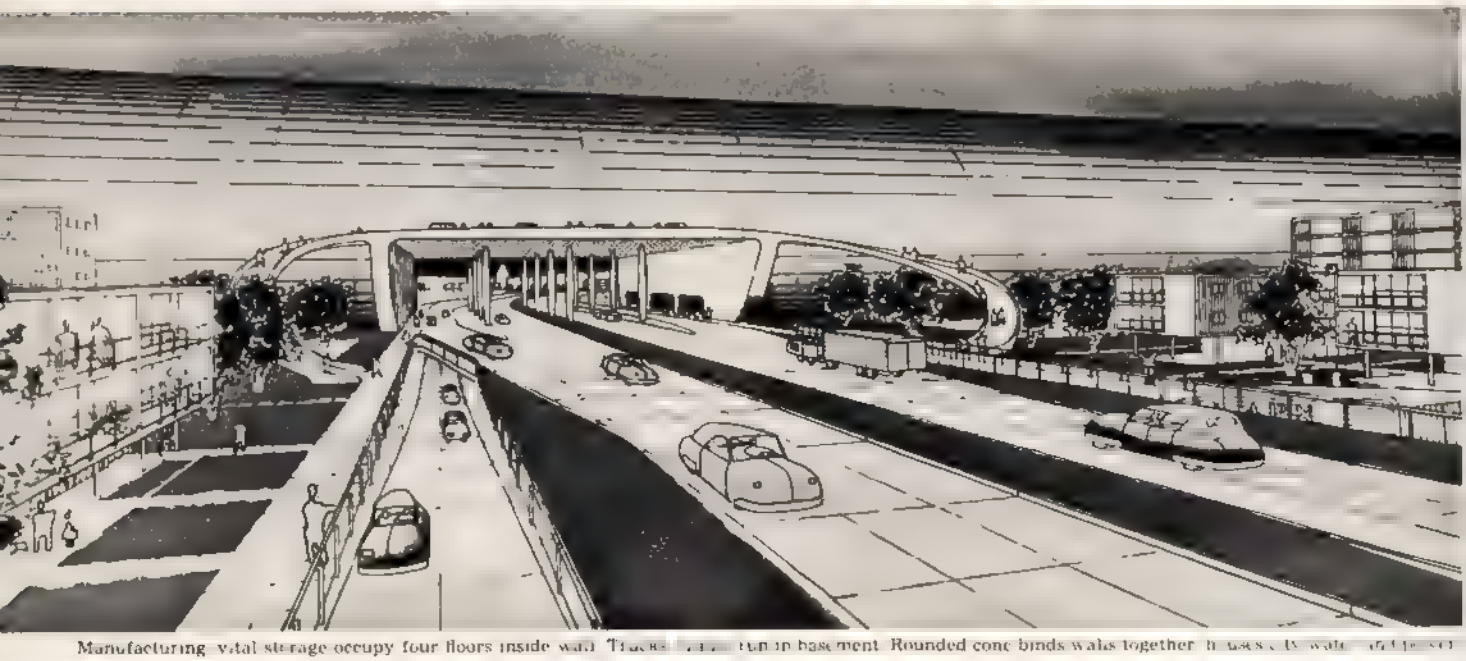


ATOM PROOF CITY

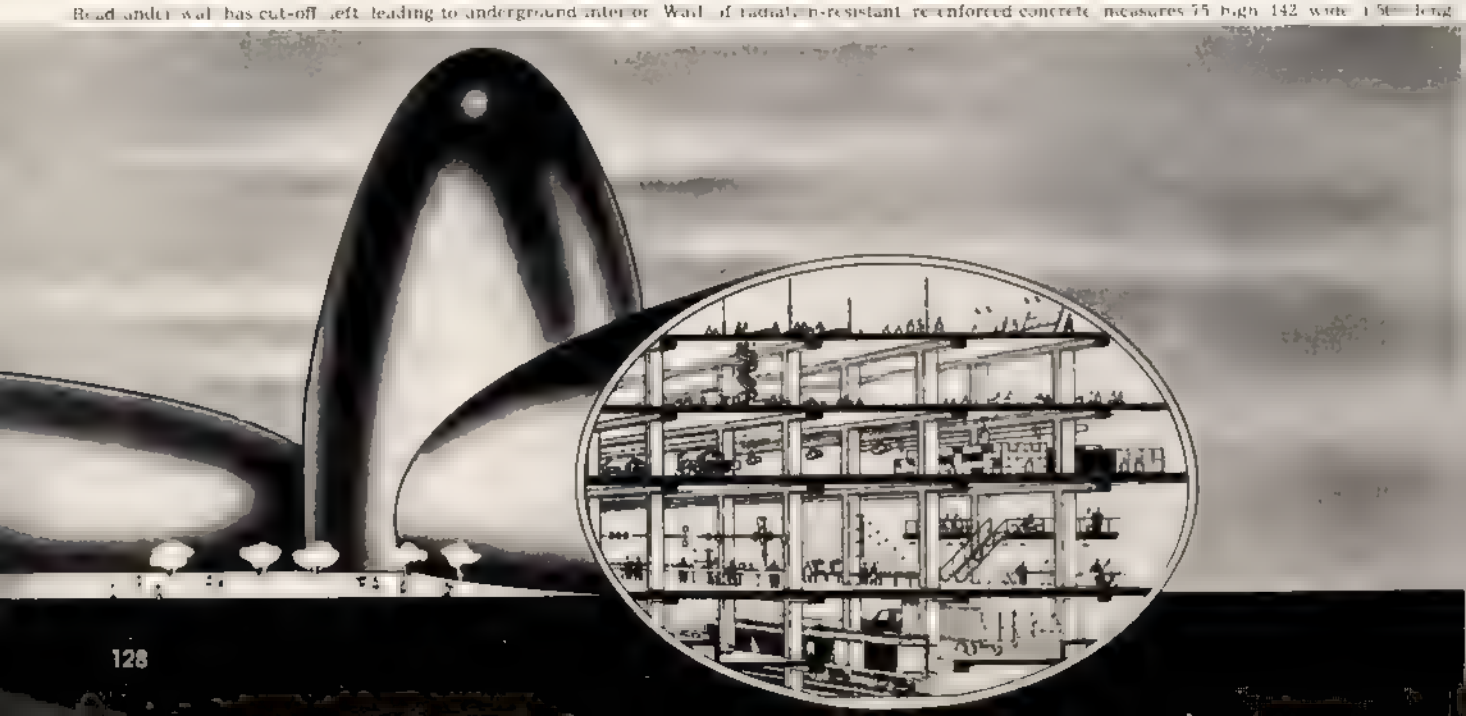
THESE strange structures were designed recently as a New York architectural firm's idea for an atom-proof industrial city. Churchill-Fulmer Associates sought an alternative to costly underground structures and borrowed an engineering idea from the busy bee. They mapped out a surface city of bomb-proof tubular walls set in honeycomb pattern, to localize a bomb's blast effect. The walls also house vital industries. Expendable plants occupy the city's outskirts. Homes in each cell are not immune, but there's a bomb-proof wall within a quarter mile of each



Strong honeycomb pattern of tubular walls protects man-made destruction by bombs



Manufacturing, vital storage occupy four floors inside wall. Trucks [illegible] run in basement. Rounded cone binds walls together. Bases [illegible] Road under wall has cut-off left, leading to underground interior. Wall of radiation-resistant reinforced concrete, measures 75 high, 142 wide, 150 long

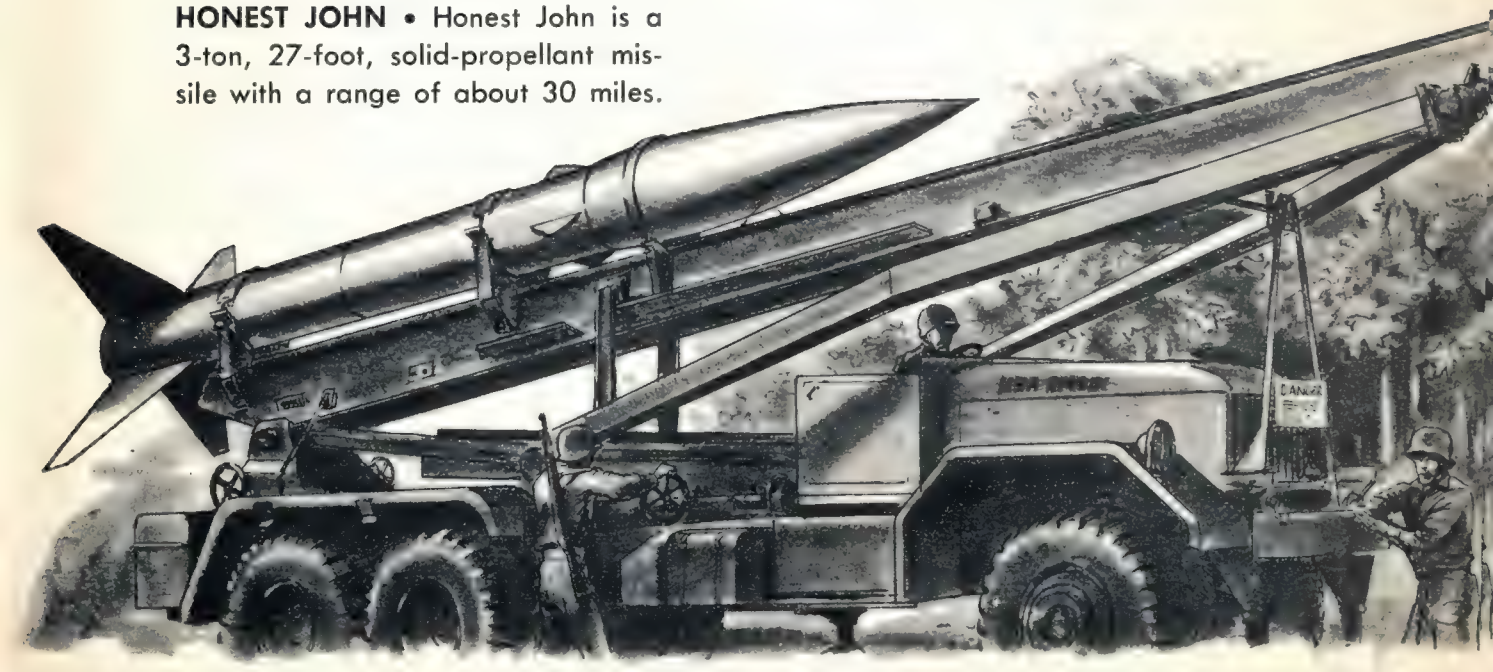


The change-over from the early days of horse-drawn guns used in World War I to the mechanized artillery of World War II is now being carried forward by the re-equipment of our modern armies with rocket missiles.

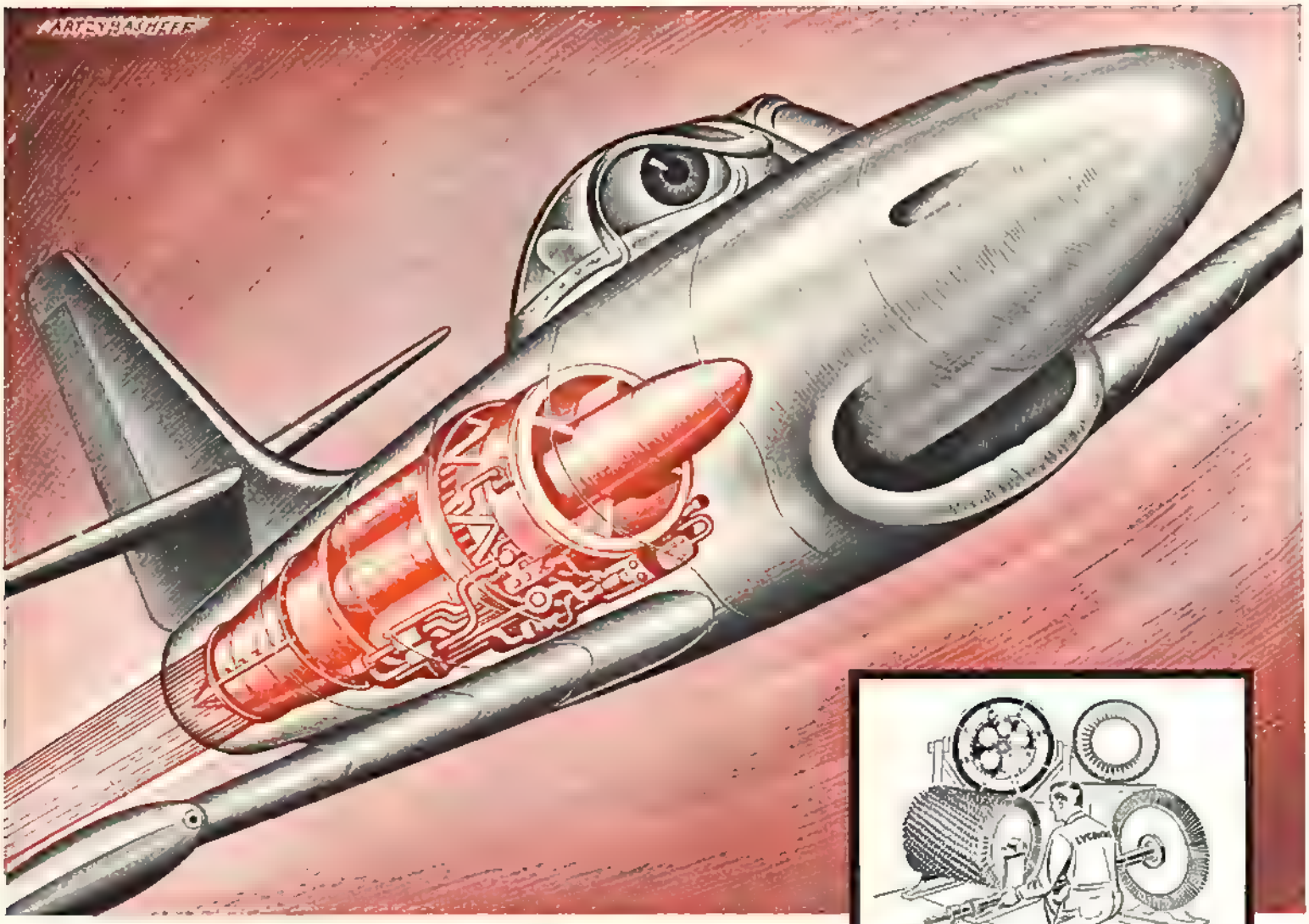
Not only are the short-range missiles more accurate and much more destructive, but rocket propulsion has extended the range of weapons far beyond that reached by old-time cannon.

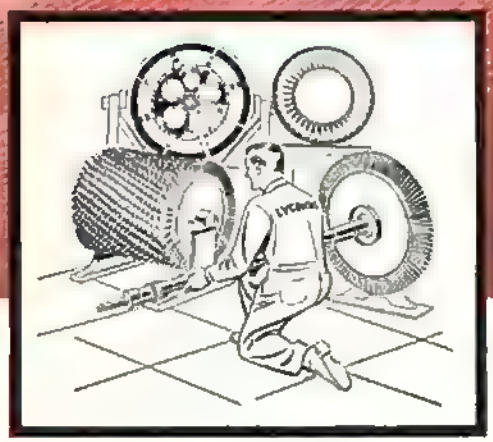
LITTLE JOHN • Little John is a 12-foot Army missile fired from a small mobile launcher. It can be guided 20 miles to a target.

HONEST JOHN • Honest John is a 3-ton, 27-foot, solid-propellant missile with a range of about 30 miles.



FUTURE GI. Keyhole peek at what the atomic war's fighting men may wear. New Army developments shown at Fort Ord, Cal., are this transistor-radio helmet, heat-resistant mask, nylon armored vest and automatic aluminum-alloy rifle that fires at a rate of 700 rounds a minute.





"Blasts" for Jets

To gun a jet to incredible speeds . . . to power it through the intricate twists and turns of combat . . . to "pour it on" in climbs, in dives, in instantaneous bursts of speed—the mighty engine of a jet plane demands parts that are tough, precise and unfailing. To assure such vital performance, General Electric looks to Lycoming as a leading supplier of the major components that go into its superb J-47 jet engine.

Whether you require precision parts of *any* kind . . . or need high-volume production, product development—or a *complete* air-cooled power plant—Lycoming's extensive research facilities and well-rounded experience stand ready to serve you. *Whatever* your problem—look to Lycoming!

For major engine parts that put the "blast" in jets,

Lycoming is one of General Electric's leading sources of precision production.

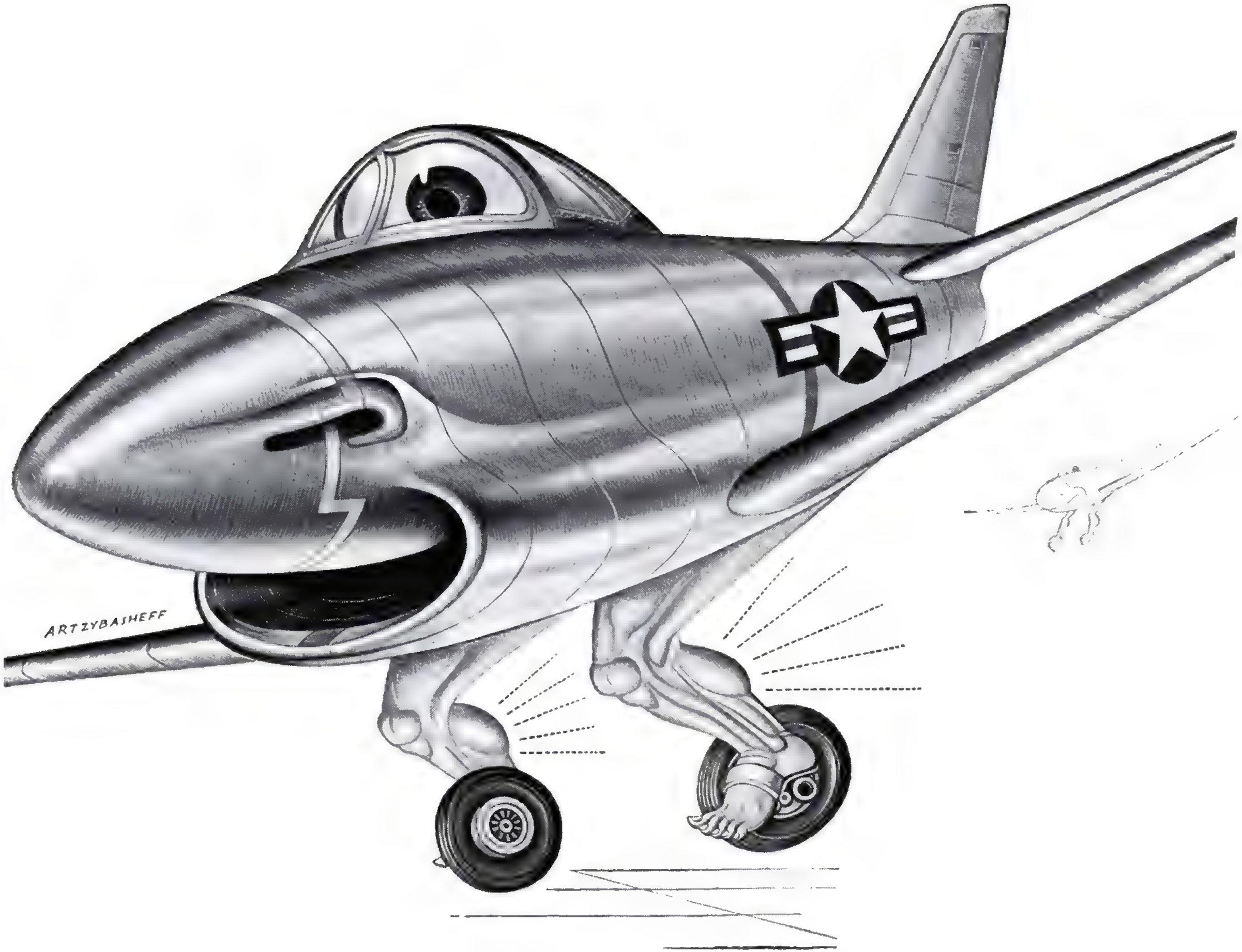
For a more complete story on Lycoming's varied abilities and facilities, write—on your company letterhead—for the interesting, illustrated booklet "Let's Look at Lycoming."

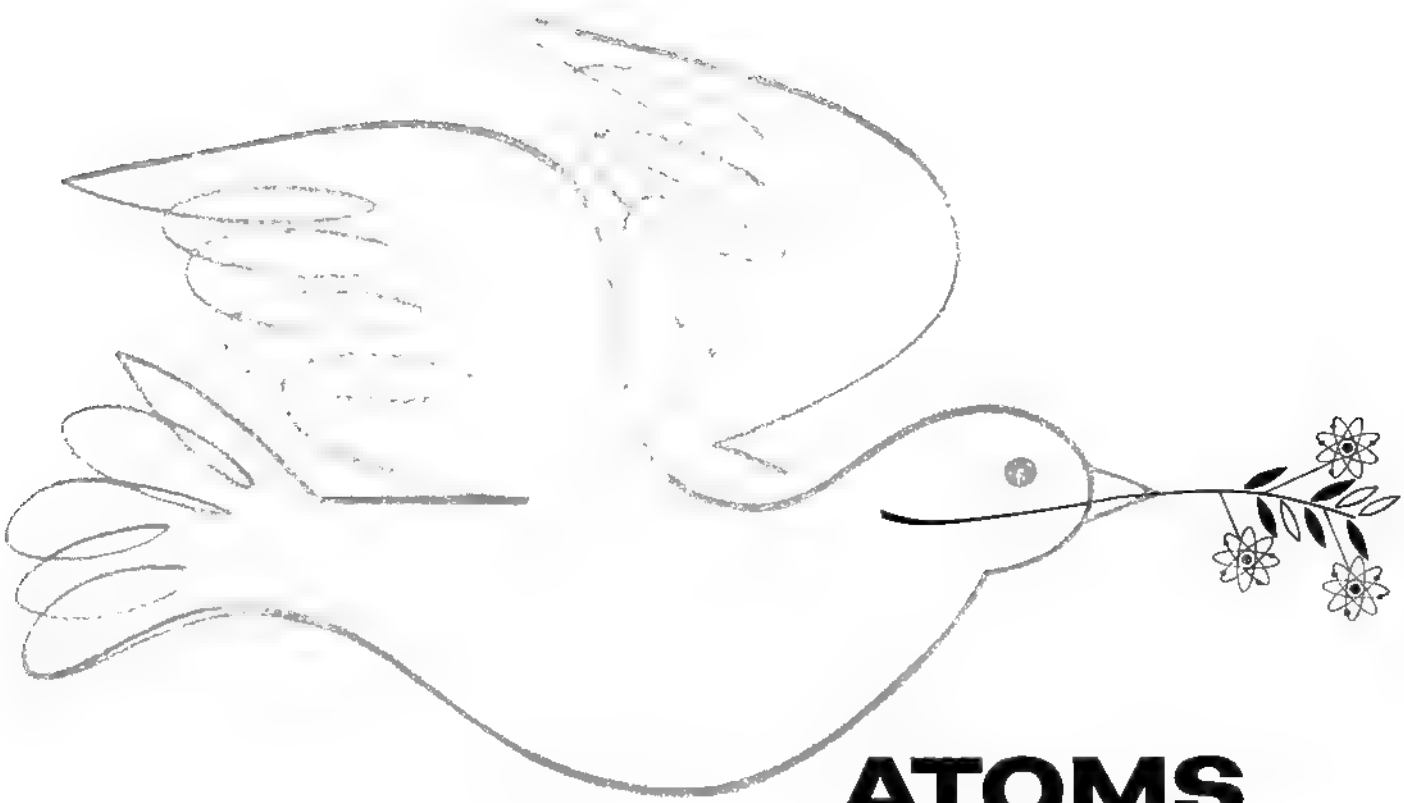
AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES • PRECISION-AND-VOLUME-MACHINE PARTS • GRAY-IRON CASTINGS • STEEL-PLATE FABRICATION

LOOK TO LYCOMING FOR RESEARCH FOR PRECISION PRODUCTION

LYCOMING-SPENCER DIVISION, WILLIAMSPORT, PA.
BRIDGEPORT-LYCOMING DIVISION, STRATFORD, CONN.

AVCO MANUFACTURING CORPORATION


ARTZYBASHEFF



ATOMS FOR PEACE

Lockheed, always in the forefront of aeronautic and scientific achievement, now extends its leadership into a significant new field—Nuclear Energy for the World's Work.

For eight years, Lockheed's nuclear scientists, physicists and engineers have been working on the development of a nuclear-powered airplane. Now, these scientists are also ready to put the atom to work for industry—with research and process heat reactors, food irradiation facilities and the applications of radioisotopes.

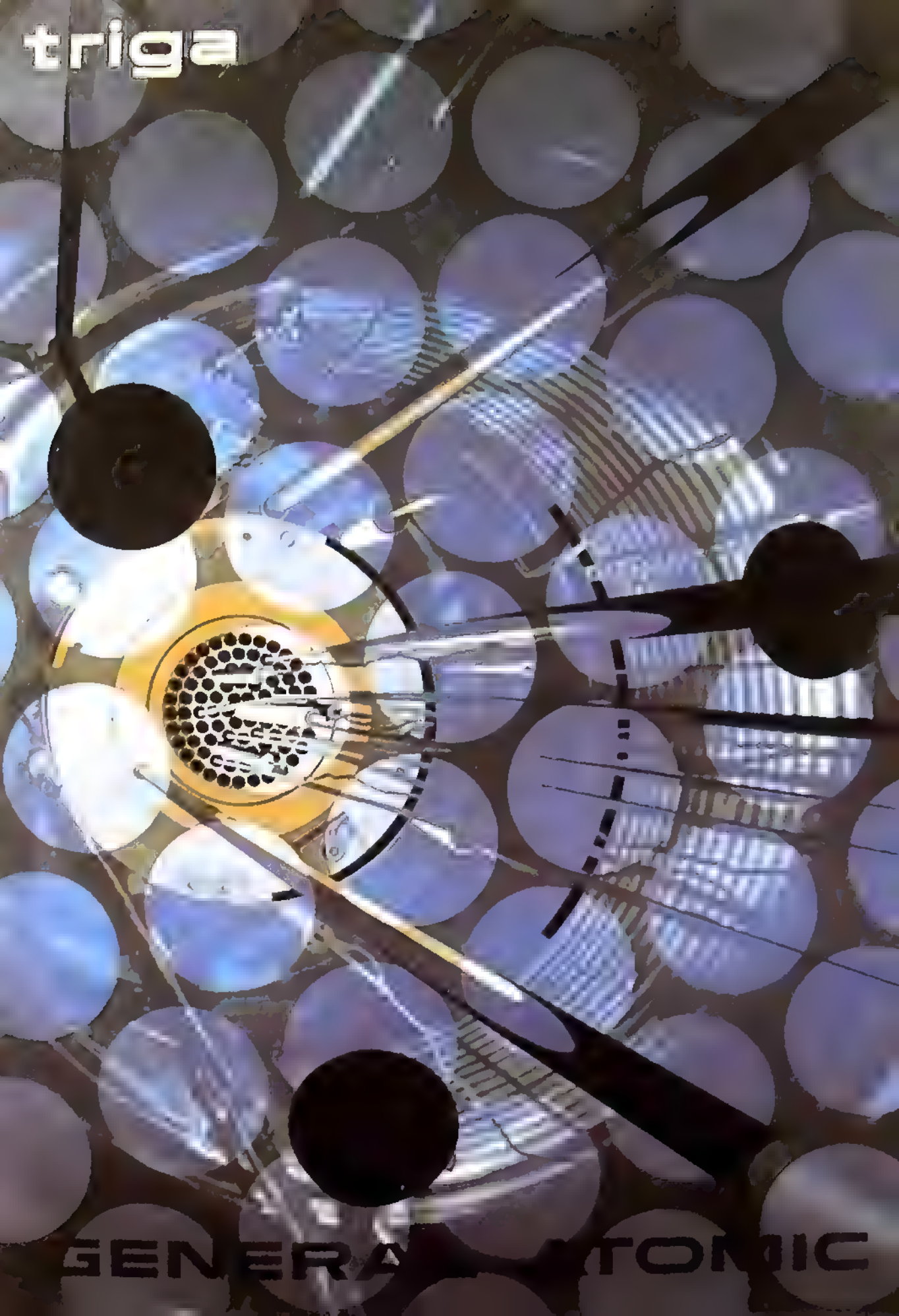
At Dawsonville, Georgia, Lockheed will begin operating the Georgia Nuclear Laboratories later this year. This new installation will provide the largest radiation effects research capability in the United States.

LOCKHEED MEANS LEADERSHIP

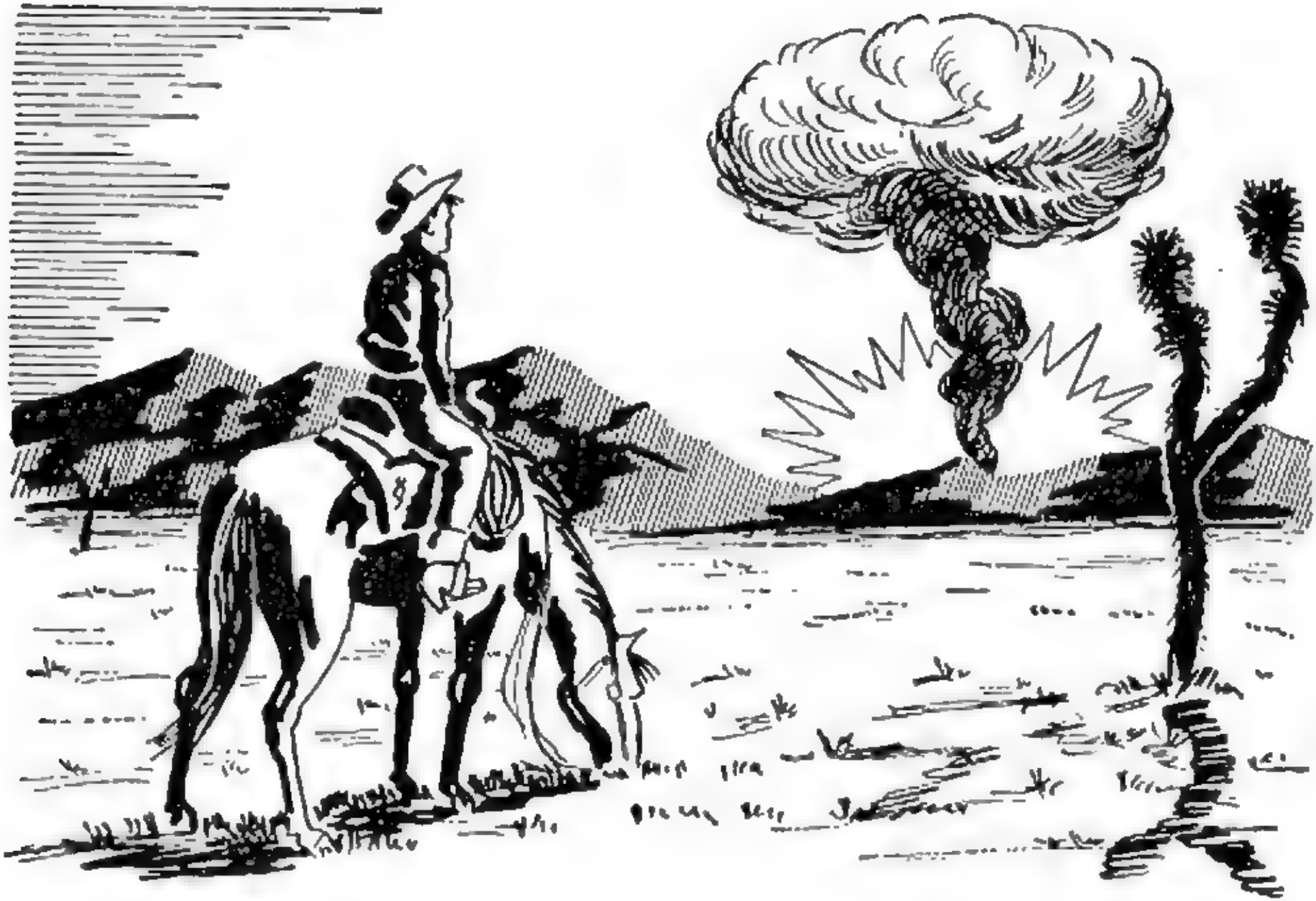
LOCKHEED NUCLEAR PRODUCTS

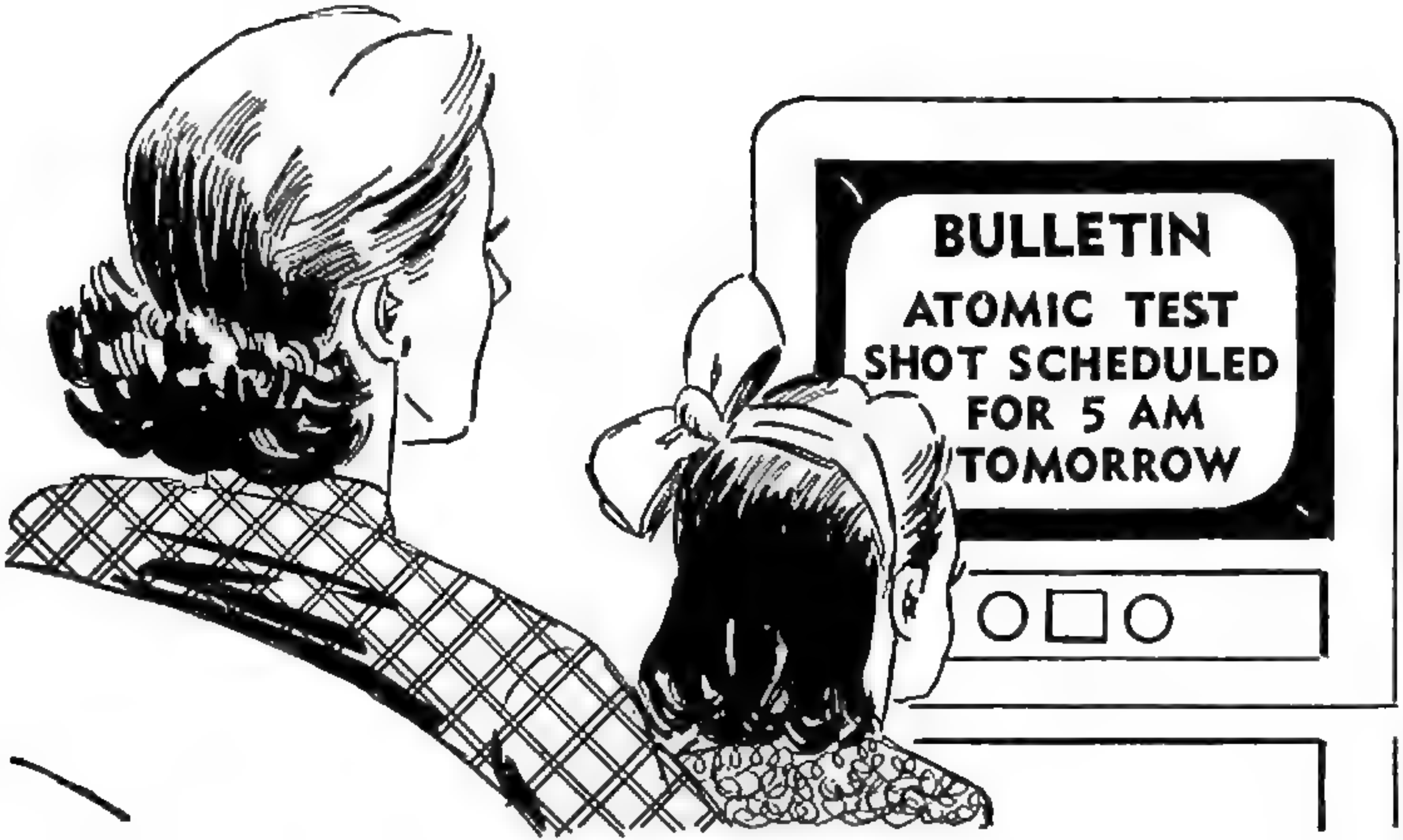
MARIETTA, GEORGIA

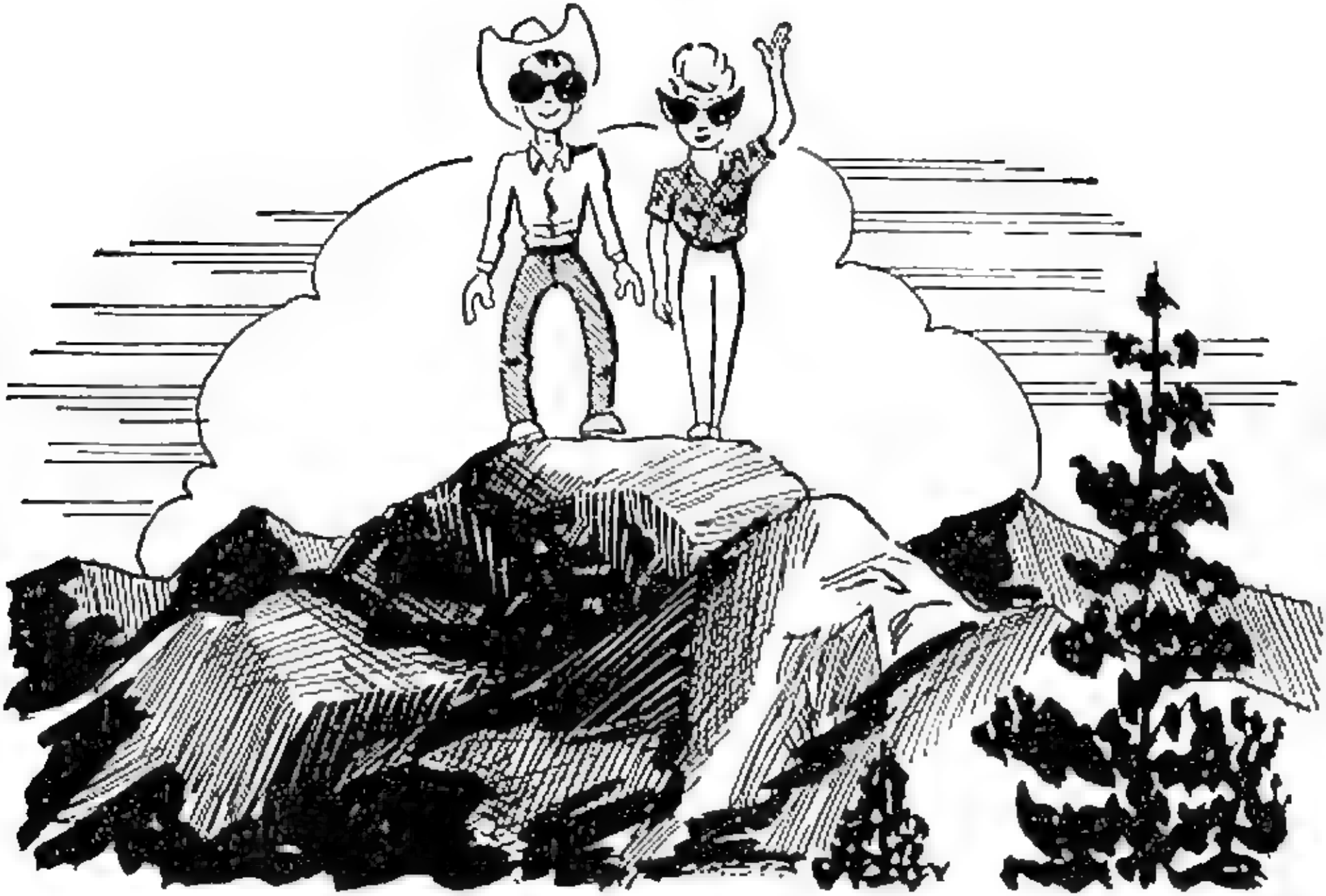
Operated by the Georgia Division
Lockheed Aircraft Corporation


triga
GENERAL ATOMIC

IT MAY SAVE YOUR LIFE!....
SEE THE ALERT AMERICA CONVOY
MAY 17-22-18-19 ARMORY-EXPOSITION PARK ABSOLUTELY FREE TO ALL
For the Best Hot Chocolate!
Drink
Charlotte Rhoades




BULLETIN
ATOMIC TEST
SHOT SCHEDULED
FOR 5 AM
TOMORROW



UNITED STATES
ATOMIC ENERGY COMMISSION
JANUARY 1955

JOINT TEST ORGANIZATION
CAMP MERCURY, NEVADA

February, 1955

A MESSAGE TO PEOPLE WHO LIVE
NEAR NEVADA TEST SITE:

You are in a very real sense active participants in the Nation's atomic test program. You have been close observers of tests which have contributed greatly to building the defenses of our own country and of the free world. Nevada tests have helped us come a long way in a few, short years and have been a vital factor in maintaining the peace of the world. They also provide important data for use in planning civil defense measures to protect our people in event of enemy attack.

Same of you have been inconvenienced by our test operations. At times some of you have been exposed to potential risk from flash, blast, or fall-out. You have accepted the inconvenience or the risk without fuss, without alarm, and without panic. Your cooperation has helped achieve an unusual record of safety.

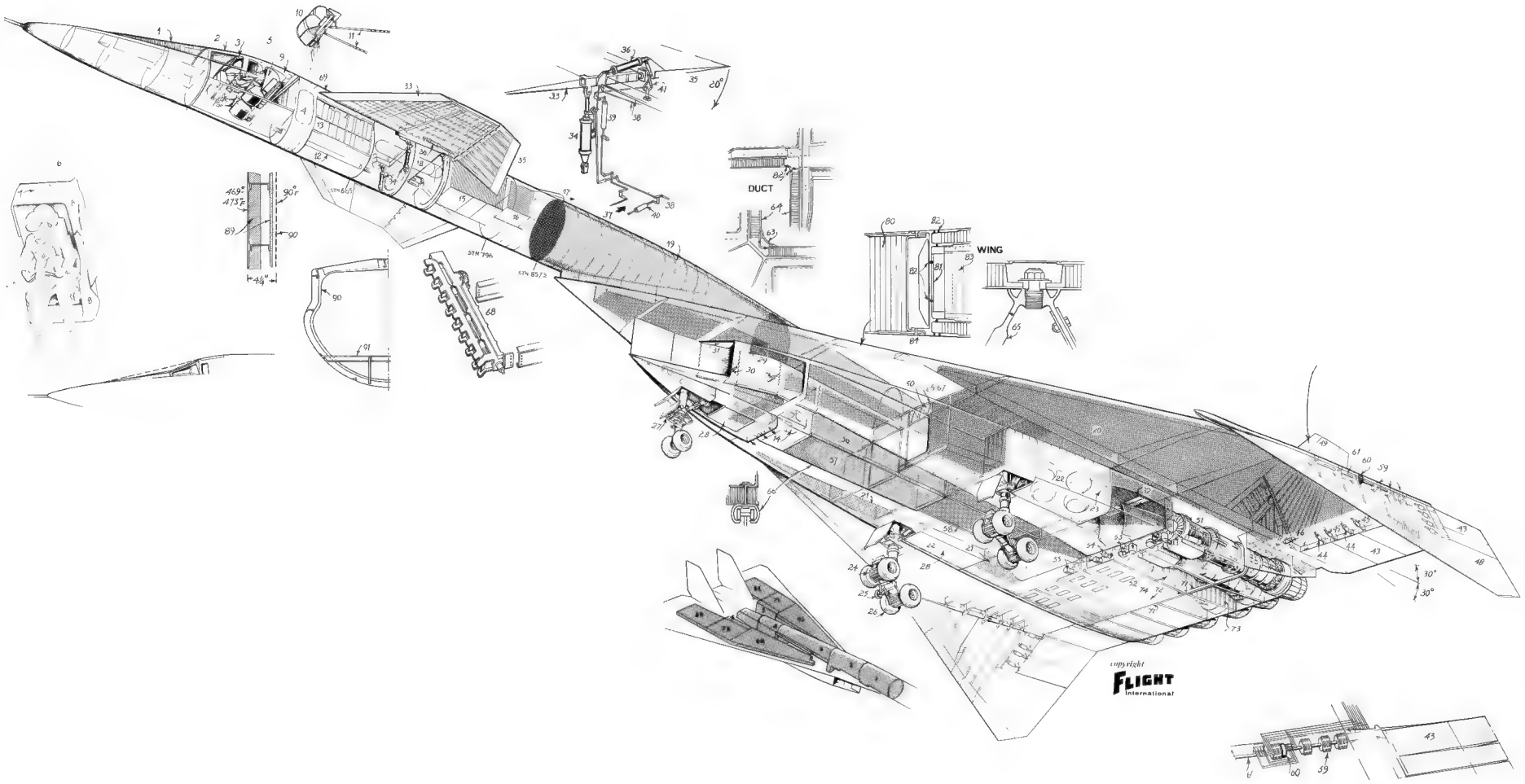
In a world in which free people have no atomic monopoly, we must keep our atomic strength at peak level. Time is a key factor in this task and Nevada tests help us "buy" precious time.

That is why we must hold new tests in Nevada.

I want you to know that in the forthcoming series, as has been true in the past, each shot is justified by national and international security need and that none will be fired unless there is adequate assurance of public safety.

We are grateful for your continued cooperation and your understanding.

James E. Ream
Test Manager


DUCT
WING
STN 796
STN 853
STN 665
469°
473°
90°
1½"
30°
30°
copyright
FLIGHT
International

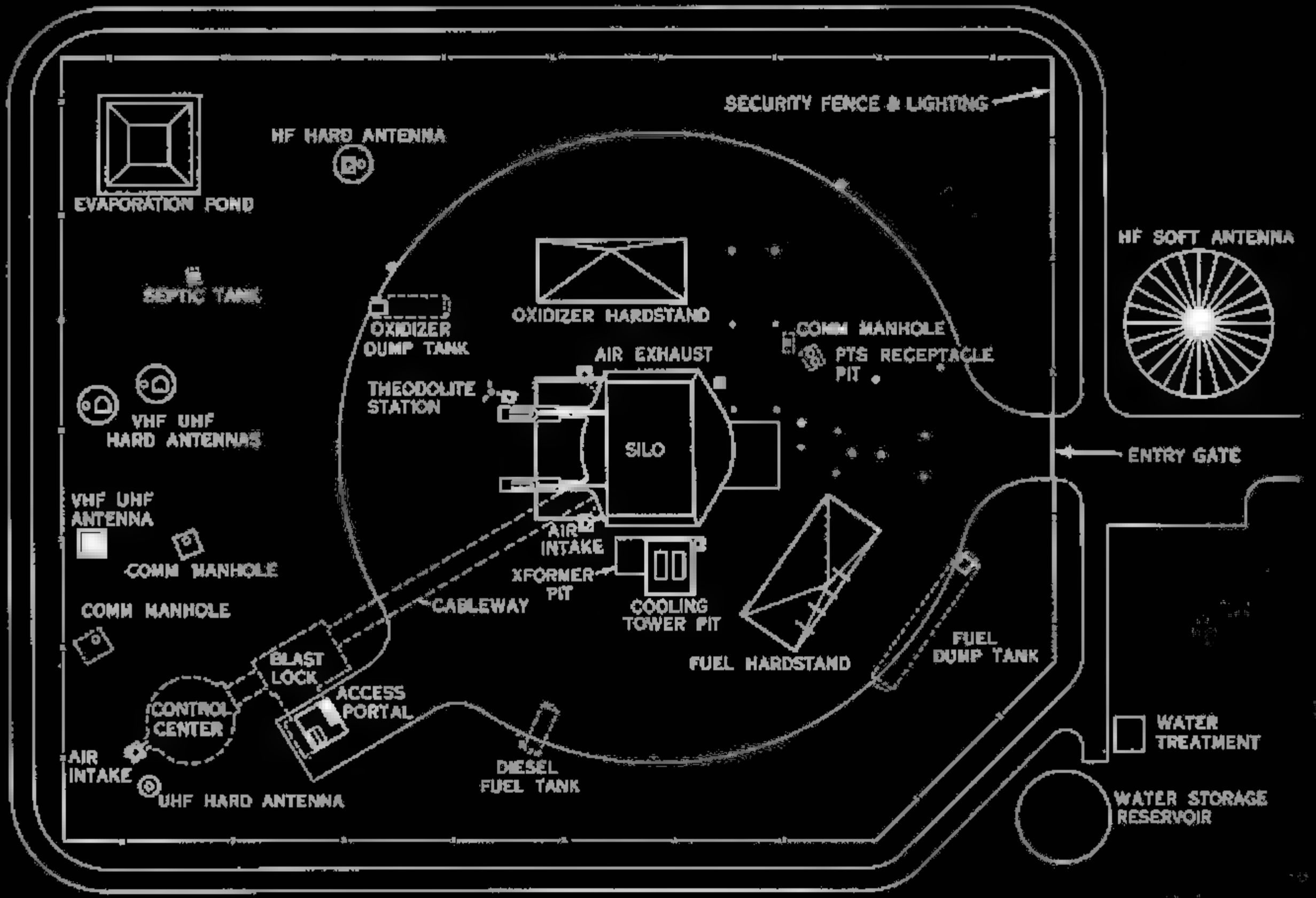
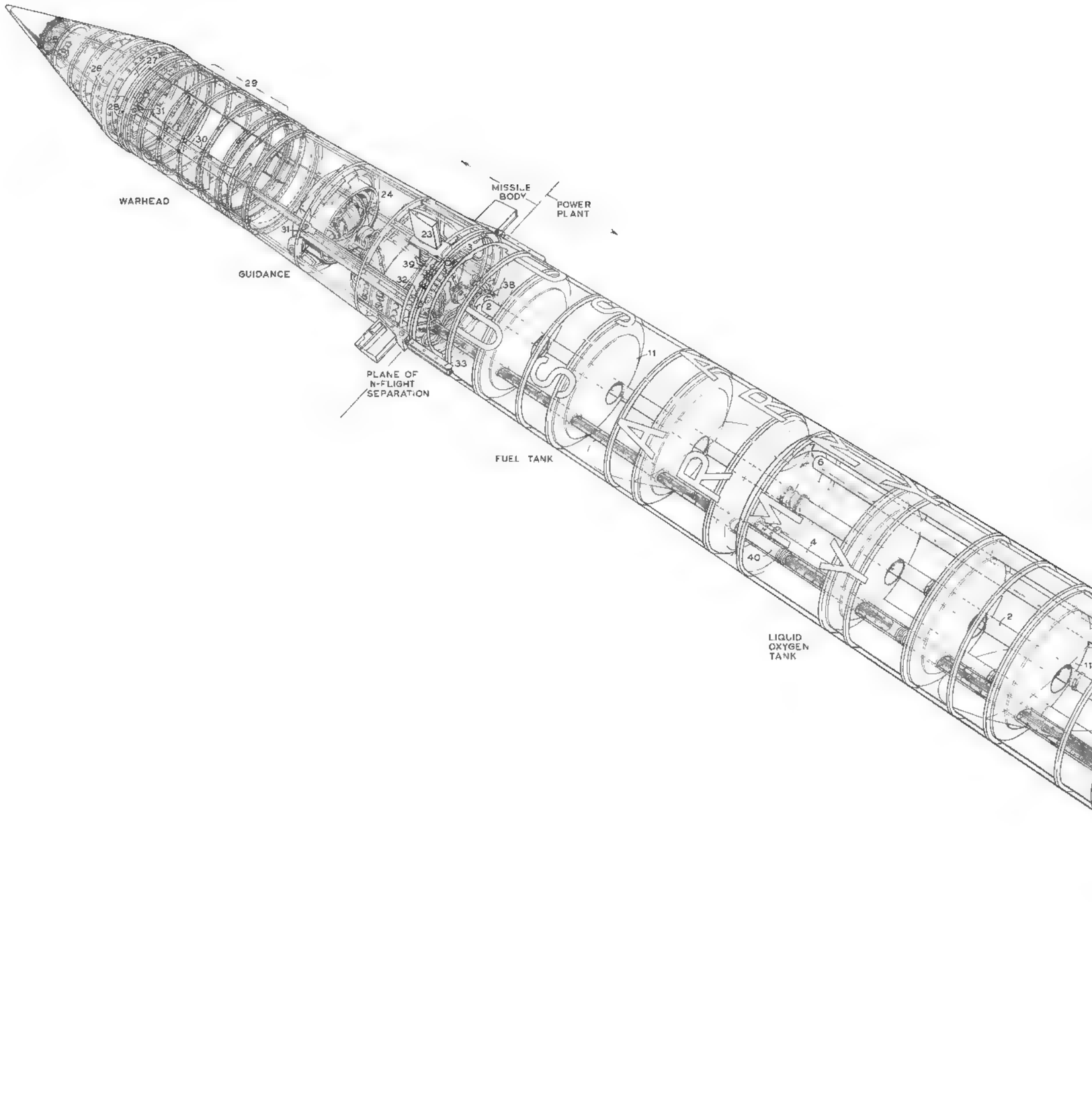
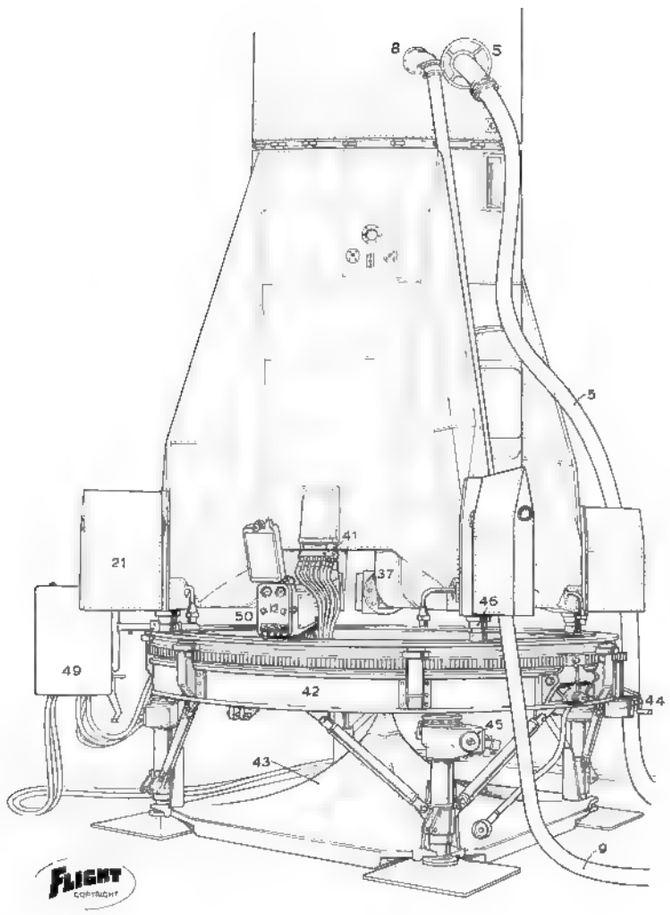


Figure 1. Layout of the missile launch complex.


WARHEAD
GUIDANCE
MISSILE BODY
POWER PLANT
PLANE OF IN-FLIGHT SEPARATION
FUEL TANK
LIQUID OXYGEN TANK
PROPULSION


FLIGHT
COPYRIGHT

STRENGTHENING THE FRONTIERS OF FREEDOM

The spearhead of Western Union defence

CONVAIR>B-58 HUSTLER

VAMPIRE NIGHT FIGHTER
setting a new world standard for defence by night

TIME
THE WEEKLY NEWSMAGAZINE

NORAD: Radar Defense of North America

TWENTY CENTS FEBRUARY 6, 1956

TIME

THE WEEKLY NEWSMAGAZINE

NATO'S GENERAL GRUENTHER

$5 A YEAR

AMERICA'S NEWEST WINGS FOR ATOMIC DEFENSE...
"DELTA WINGS," BORN AND BUILT BY CONVAIR'S

Engineering to the Nth power

WATER-BASED FIGHTER
Convair's twin-jet "Sea-Dart" (XF2Y-1) expands the air defense perimeter of fleets at sea and bases ashore

LAND-BASED INTERCEPTOR
From this experimental design comes Convair's supersonic F-102 to spearhead U.S. defenses

HERE'S A TRIANGLE WITH MORE THAN THREE POINTS

Convair was the first to engineer, build and *fly* the triangular shaped solution to the problem of human flight in the vicinity of the speed of sound... and beyond. Through the versatile skills of Convair engineering, the delta configuration has already given America its first land-based, supersonic interceptor... and the world's first water-based very-high-speed jet fighter. Adaptations of the delta to bomber and transport designs are now under way. Proof again, that Convair engineering achieves the maximum of air power... Engineering to the N*th* Power!

CONVAIR
SAN DIEGO & POMONA, CALIFORNIA
FORT WORTH & DAINGERFIELD, TEXAS

YOU
CAN
PROTECT
YOUR
FAMILY

AGAINST

FALLOUT

FALLOUT SHELTERS

What does it take to feel like a man?

It takes *action* to feel like a man. Takes *pride*, too, and good, skillful *training*. Join the modern Army's Combat Arms program and you'll have all three.

Pride? In Combat Arms it makes no difference whether you select Infantry, Armor, or Artillery. You'll be proud of any one of them. And you'll end up proud of yourself, too.

Action? In today's modern Army it's *go* all the way. Every unit is smooth, fast, and flexible. And every day brings fresh, new challenges. It takes real men to cope with them.

Training? In today's world nothing but skilled hands and minds will do. The whole Army is like a huge, well-oiled engine—with men and machines closely interlocked. It takes *men* to fit into this kind of picture.

And of course you have other choices, too. Want Combat Support or Technical Training? Then ask for Electronics, Heavy Equipment, Transportation or Maintenance. It's as simple as that. If you're *qualified*, your choice is *guaranteed before you enlist*. Find out how to feel like a man in today's fast-changing world. See your local Army recruiter today!

expressway for automatic all-weather landings

SPECO The Steer Products Engineering Division of Kelsey Hayes is developing the radar antenna mounts for Bell Aerosystem's All-Weather Automatic Landing System designated AN/SPN-10 by the Navy. The system has been selected to guide aboard the U.S.S. [illegible] and other nuclear powered carriers.

[illegible] Speco has been a [illegible] the nation's aviation [illegible] programs and [illegible] has provided radar [illegible] Talos, Hawk [illegible] Nike Zeus and [illegible] guidance systems. [illegible] information, write Speco Division, Kelsey Hayes Co. [illegible], Ohio.

KELSEY HAYES COMPANY

[illegible]

[illegible]

KH

To Every Management Engaged in Defense Production

Time is on the side of those who use it best!

All defense production must meet schedules as well as standards— and nothing saves time like Airfreight

NO MATTER how great our stockpiles of essential materials may be, they are of little value unless we conserve *time* as well. For time... vital to all defense production... is the key factor upon which the success of America's present build-up depends.

For this reason, more manufacturers than ever before are taking advantage of the tremendous economy of time offered by Airfreight. They've reduced the risk of costly assembly line delays by depending upon air shipments. And, most important of all, they've gained extra days for production that were once lost to week-long surface shipments.

As a contractor or sub-contractor contributing to the military program, you cannot afford to overlook the numerous benefits that result from this modern form of transportation. Let an American Airlines representative show you how Airfreight can speed up operations and solve your supply problems. There never has been a time when *saving* time meant more. There never has been a time when Airfreight was so important.

AMERICA'S LEADING AIRLINE— **AMERICAN AIRLINES** INC.

With new disease agents perfected to the point where they are mass-produced, easily stored and transported over long periods of time, biological warfare by sabotage becomes a deadly possibility. BW weapons can spread disease, sickness, death and panic throughout a country. Because of the freedom of movement throughout America, and the massive quantities of goods shipped by sea, air, rail and highway, we are particularly vulnerable to BW attack. Enemy efforts would be directed against our farms and crops, with diseases and pests directed against livestock and plants.

There is one tremendous point in our favor and that is that we have the best epidemic and hygienic controls in the world. Our natural national standards of health provide a tremendous defense against biological agents. Our rapid systems of communication and transportation also mean that we can move quickly to stamp out disease outbreaks. Also, and not to be ignored, we can deal out devastating retaliation against enemy nations *far more vulnerable to this type of warfare than we are.*

The most active defense against BW is to be prepared to detect quickly any new insects or foreign diseases and be ready to stamp them out at once. The better these preparations of ours to move and act quickly, the less chance the enemy will have for success in such a venture.

Attacks against America's breadbasket would most likely begin in hatcheries, stockyards, sales barns, railroad terminals, feed mixing plants and other places where large quantities of food and many animals pass through on their way to and from farms.

We must remember that some of the world's greatest crop and livestock blights have never been loose inside our nation. Such diseases include, among many, the Asiatic cattle plague *rinderpest* which destroys nearly every animal it strikes. Foot-and-mouth disease, often raging throughout Mexico ($90,000,000 and years of work haven't stamped it out) is an insidious destroyer of cattle. Fowl pest and foreign strains of Newcastle disease are probably the two most destructive poultry diseases on the globe.

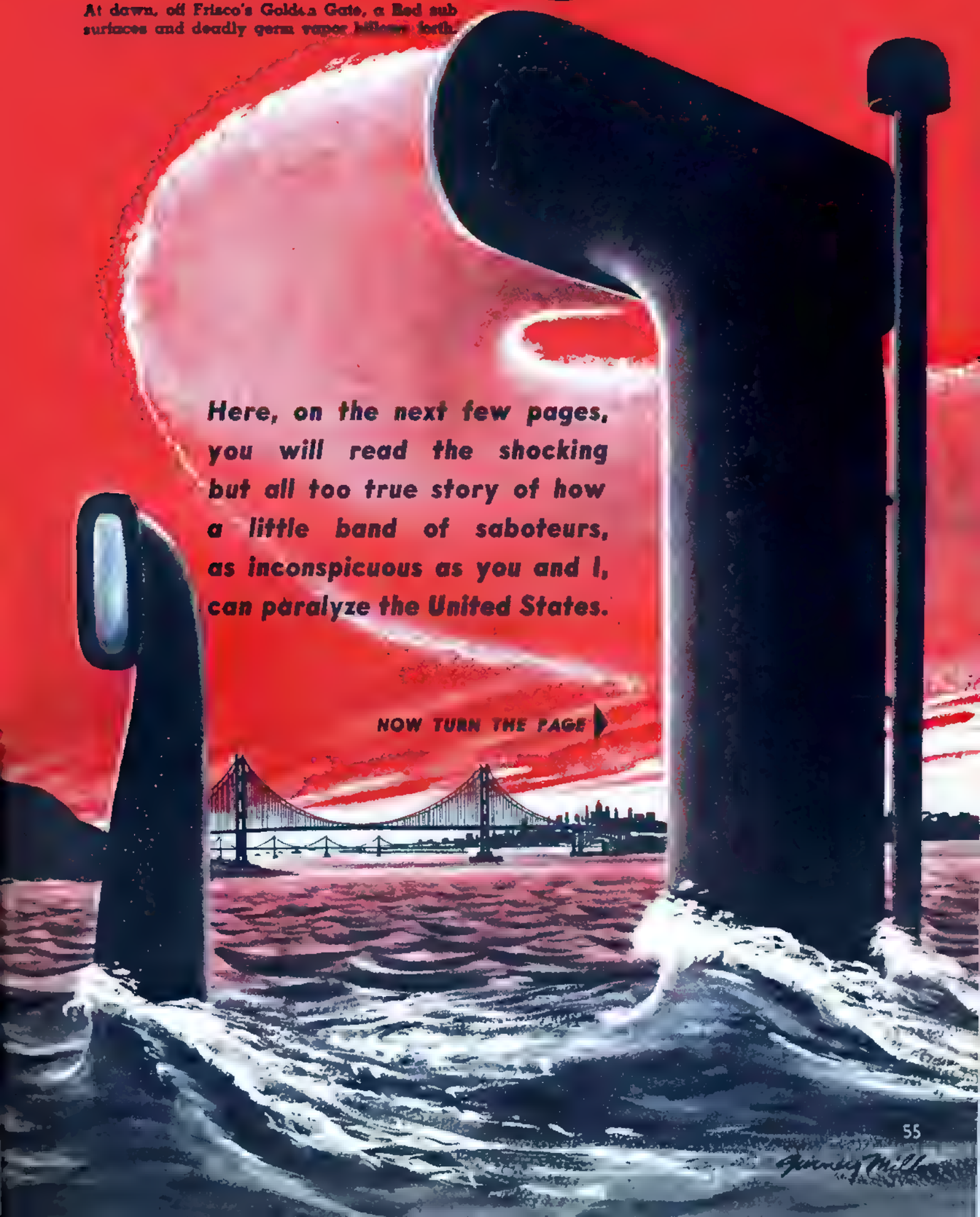
Foot-and-mouth disease in 1914 got a month's start accidentally in Michigan and soon spread to Chicago stockyards. It flared in 22 states before it was halted—and resulted in [*Continued on page* 202]

Reservoirs are a tempting target for saboteurs. Only 350 gallons of a toxin 10,000 times deadlier than potassium cyanide, will poison 10 million gallons.

Sabotage!

MI
SPECIAL FEATURES

At dawn, off Frisco's Golden Gate, a Red sub surfaces and deadly germ vapor billows forth.



Here, on the next few pages, you will read the shocking but all too true story of how a little band of saboteurs, as inconspicuous as you and I, can paralyze the United States.

NOW TURN THE PAGE ▶

POPULAR SCIENCE Monthly

Aug. 1949

25¢

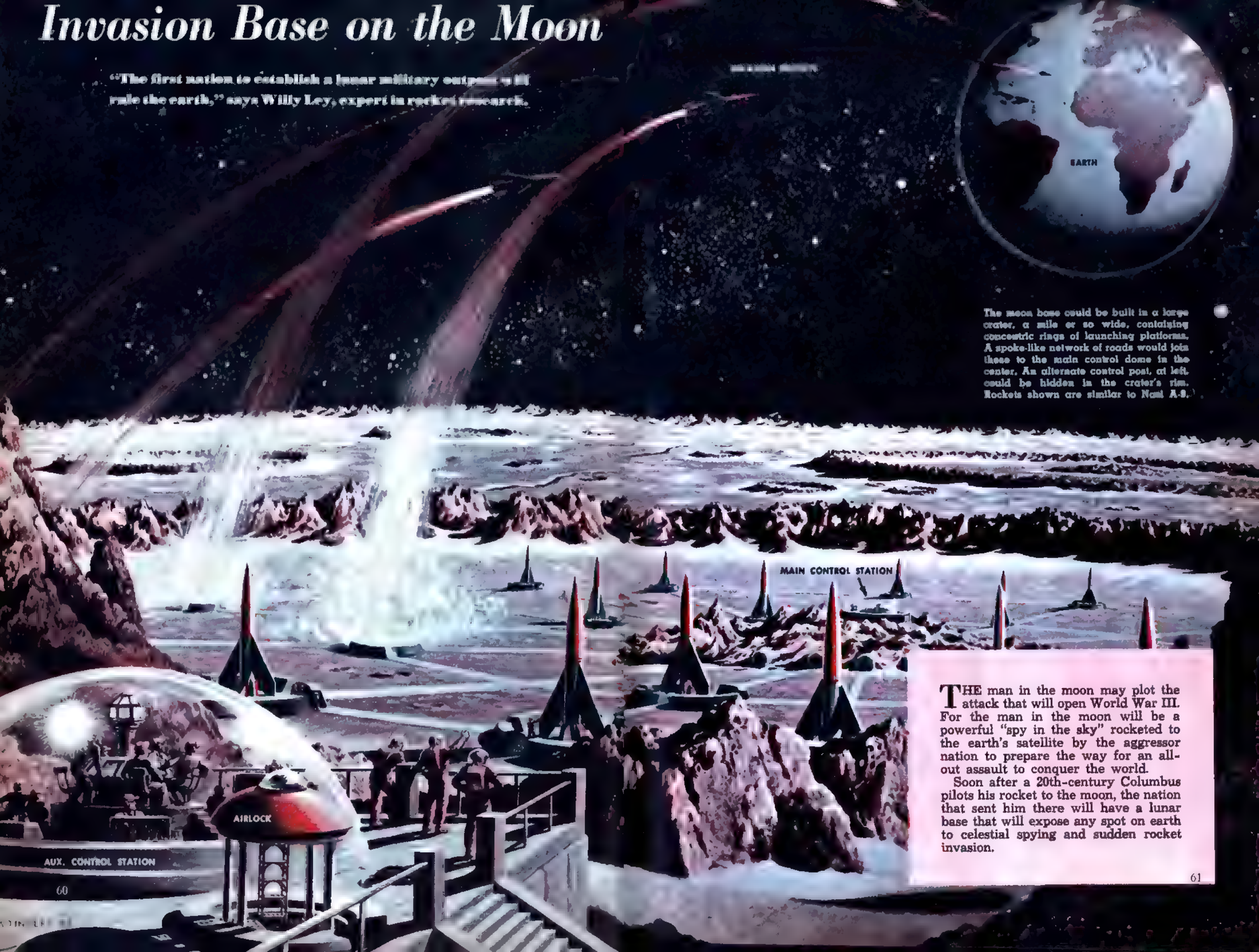
Can Superfighters Stop the Bombers?

PAGE 90

A well-known aircraft company, which desires to remain anonymous, is working on this man-carrying rocket depicted by an MI artist. Wings control it in air.
FRANK TINSLEY '48

Invasion Base on the Moon

"The first nation to establish a lunar military outpost will rule the earth," says Willy Ley, expert in rocket research.



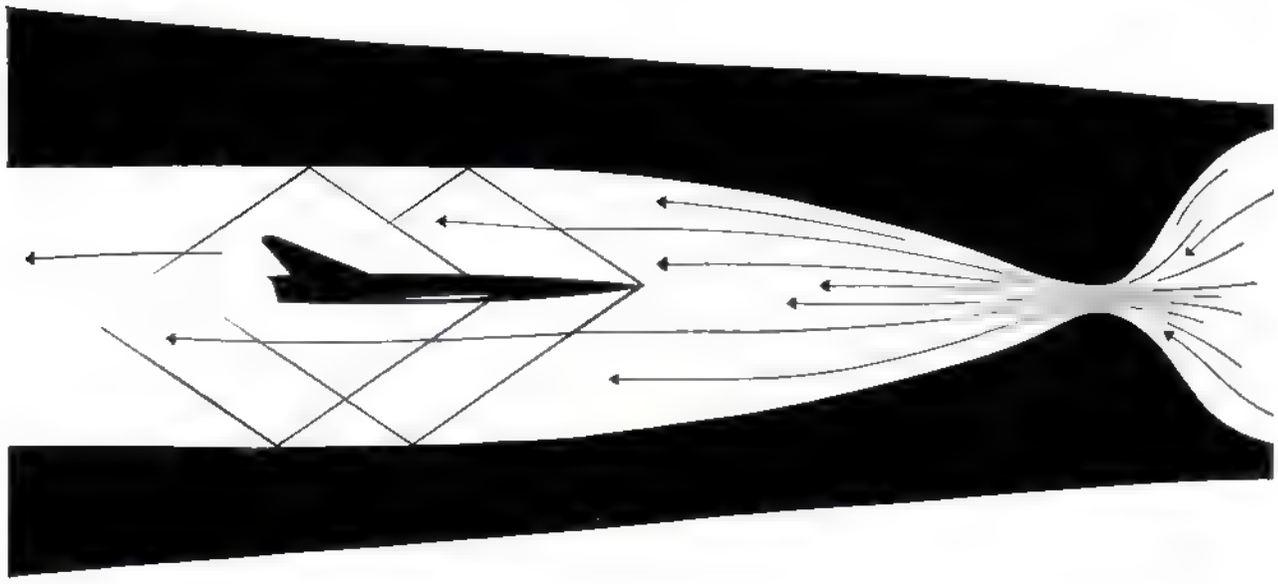
The moon base could be built in a large crater, a mile or so wide, containing concentric rings of launching platforms. A spoke-like network of roads would join these to the main control dome in the center. An alternate control post, at left, could be hidden in the crater's rim. Rockets shown are similar to Nazi A-9.

THE man in the moon may plot the attack that will open World War III. For the man in the moon will be a powerful "spy in the sky" rocketed to the earth's satellite by the aggressor nation to prepare the way for an all-out assault to conquer the world.

Soon after a 20th-century Columbus pilots his rocket to the moon, the nation that sent him there will have a lunar base that will expose any spot on earth to celestial spying and sudden rocket invasion.

SECRET
XV
1957
SECRET SQUADRON
OFFICIAL MANUAL
AND CODE BOOK

Guided Missile Engineers and Scientists



BUILD YOUR FUTURE IN A PRIME WEAPONS SYSTEM PROJECT...

The SM-64 Navaho Intercontinental Guided Missile

North American Aviation has prime weapons system responsibility for the SM-64 NAVAHO. This missile program is one of our country's largest, most important armament projects . . . a vital part of future defense planning . . . offering you long-term security, plus the opportunity to enrich your experience and capabilities in many advanced scientific and technical fields.

North American is actively engaged in **all** phases of research, design, development and manufacture of missile airframes and the operational testing of complete missile units. For instance, more than 100 separate projects make-up the NAVAHO effort. Your special training and abilities can be vital to the success of one or more of these intellectually-demanding projects. Your advancement depends only on your ability.

Military security prevents more adequate description of the NAVAHO and other missile studies and proposals in development at North American. For a fuller explanation of the opportunities open to you, please contact North American's Missile Development Engineering.

IMMEDIATE OPENINGS FOR:

AERODYNAMICISTS
AEROTHERMODYNAMICISTS
FLIGHT TEST ENGINEERS
AIR FRAME DESIGNERS
MECHANICAL & ELECTRICAL DESIGNERS
INSTRUMENTATION ENGINEERS
ENGINE SYSTEMS ENGINEERS
STRESS & STRUCTURES ENGINEERS
RELIABILITY ENGINEERS
STANDARDS ENGINEERS
HYDRAULIC, PNEUMATIC & SERVO ENGINEERS

Contact: Mr. D. S. Grant
Engineering Personnel Office Dept. 91-20 SA,
12214 Lakewood Blvd., Downey, California

NORTH AMERICAN AVIATION, INC.

MACE - TM - 76

GUIDED MISSILE

LTV A-7D Corsair II of the 354th TFW, US Air Force

Dimensions
Span 13·86 m (38 ft 9 in)
Length 14·4 m (46 ft 1½ in)

Engine
One 6,575 kg (14,500 lb) Allison TF41-A-1 turbofan

Performance
Maximum speed Mach 0·92 at 7,000 m (23,000 ft)
Tactical radius 1,120 km (700 miles)

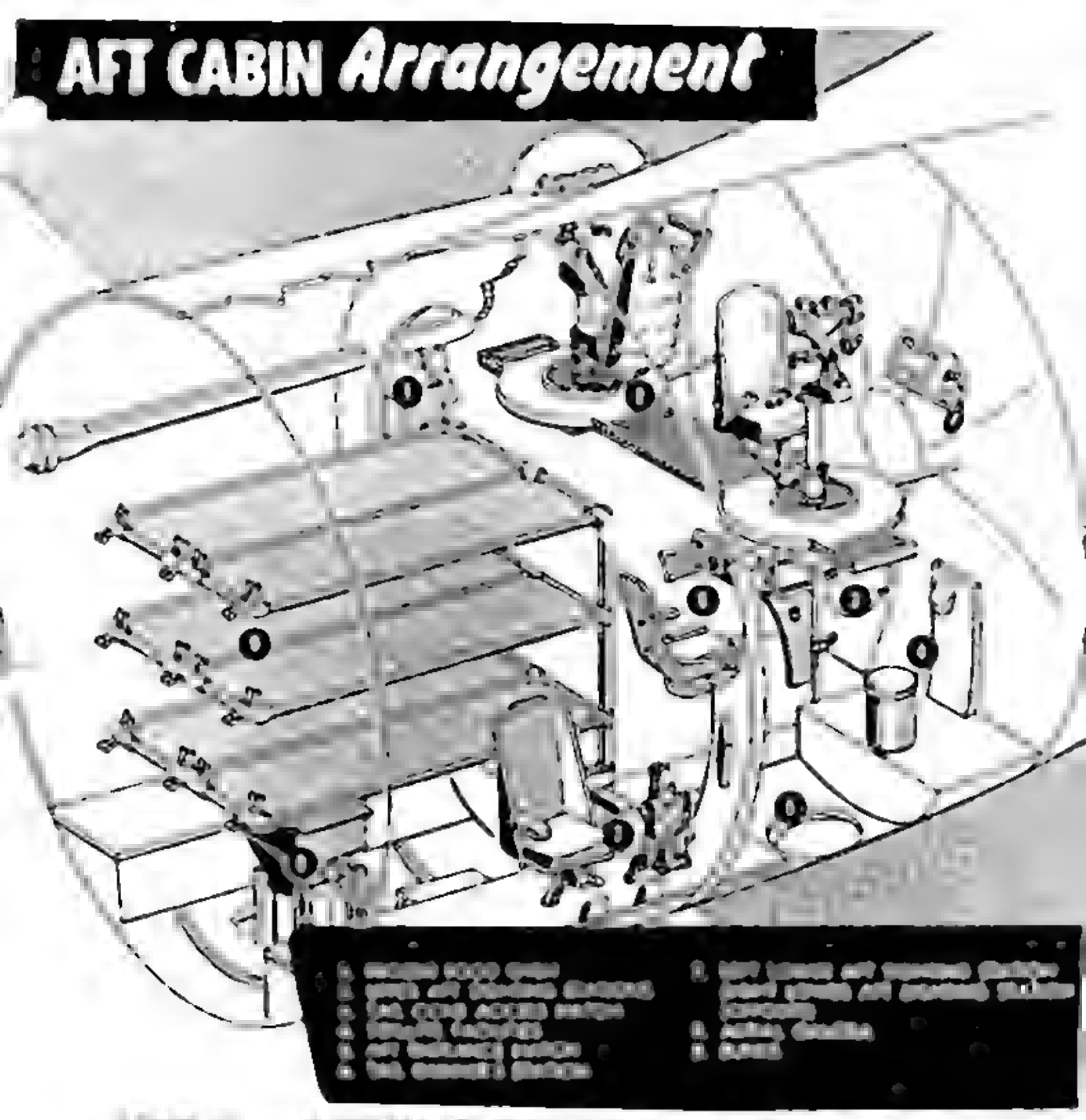
Armament
One 20 mm M61 Vulcan cannon
Up to 6,800 kg (15,000 lb) of external stores

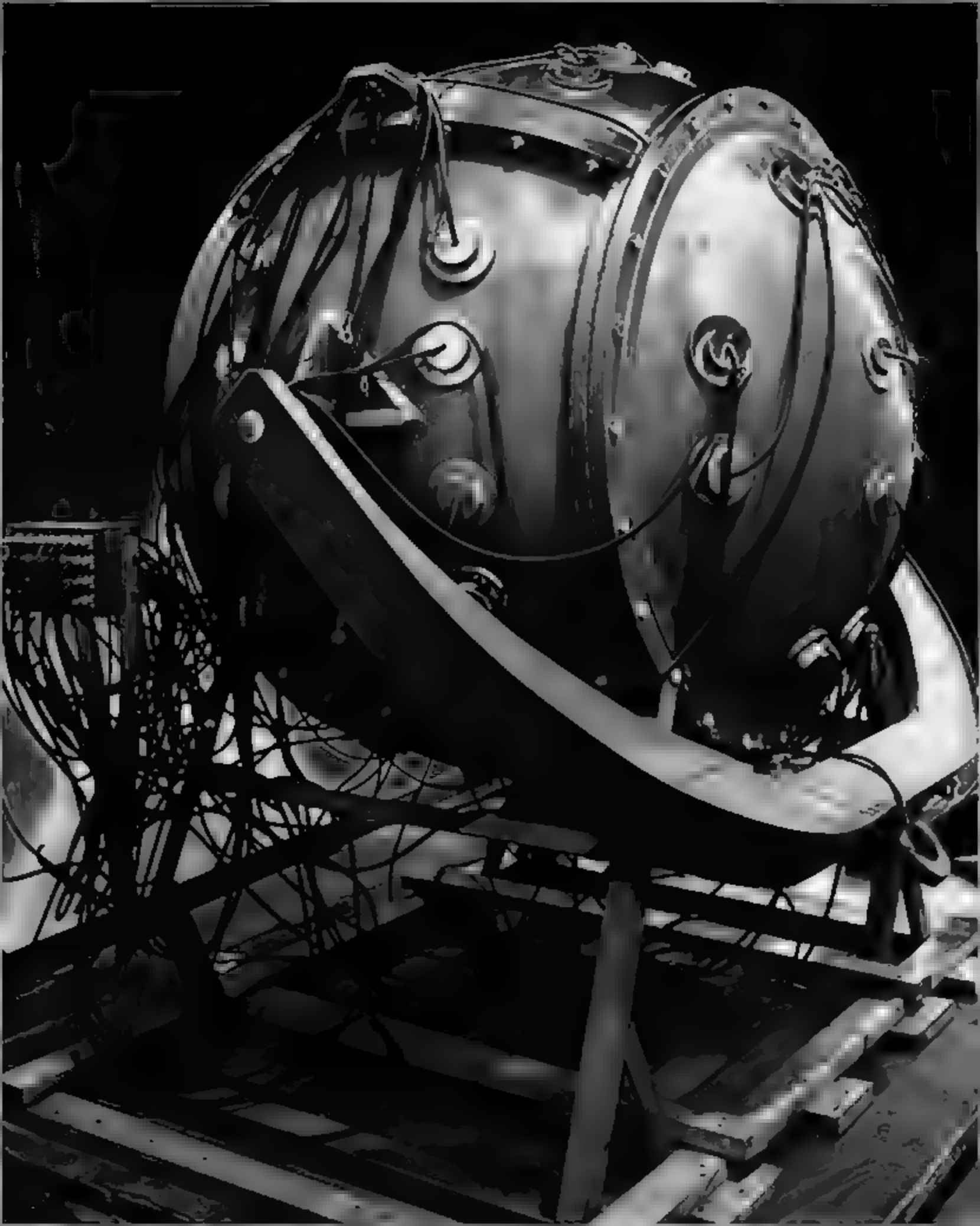
ENGLISH ELECTRIC
CANBERRA
POWTY
Equipped

ROLLS-ROYCE AVONS POWER THE
ENGLISH ELECTRIC LIGHTNING
THE ONLY MACH—2 AIRCRAFT
OPERATING WITH THE RAF TODAY

LORAIN
B-1-3
B-2-3

AFT CABIN *Arrangement*

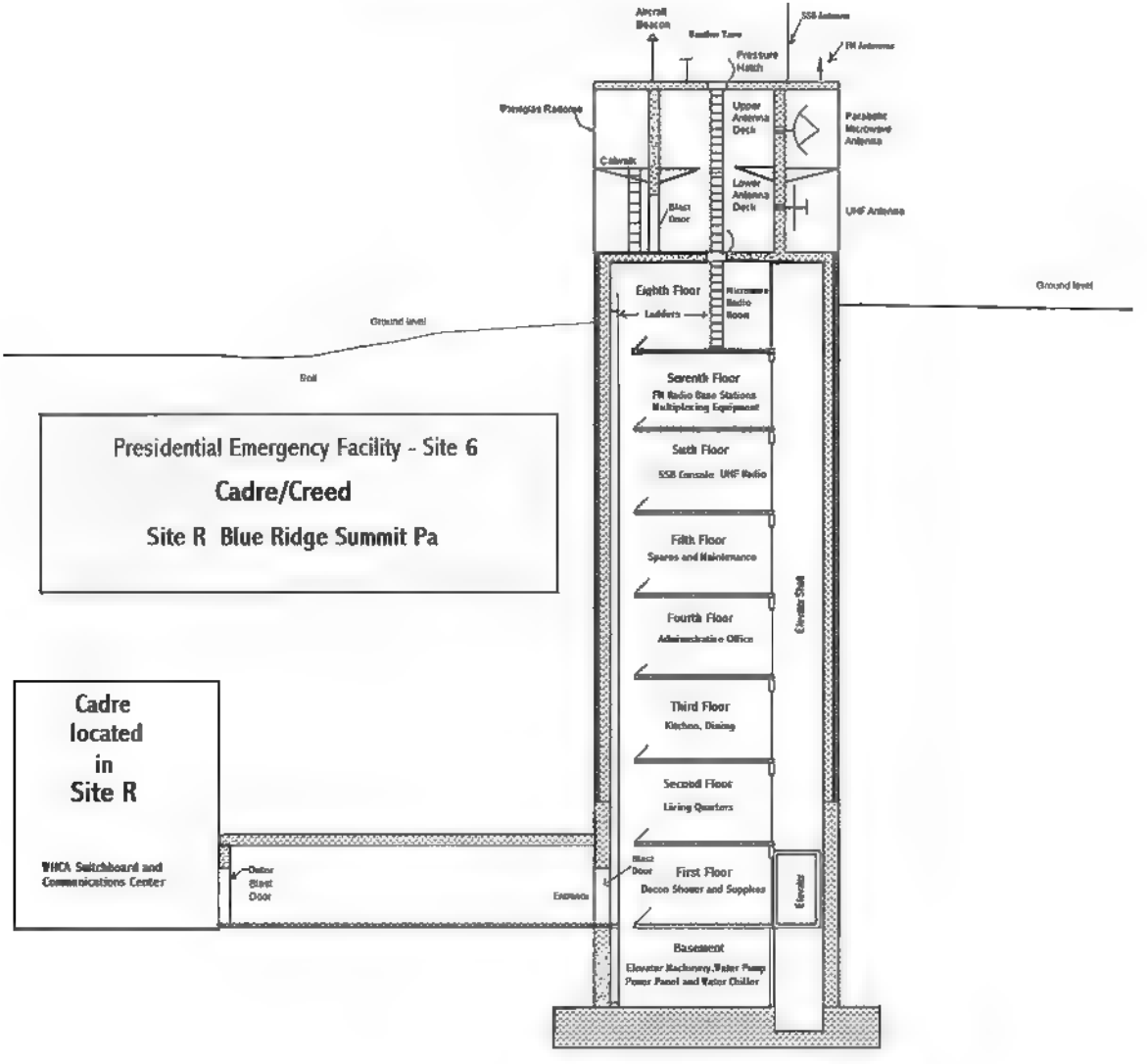




10333
NORMAL
GROUND
LEVEL

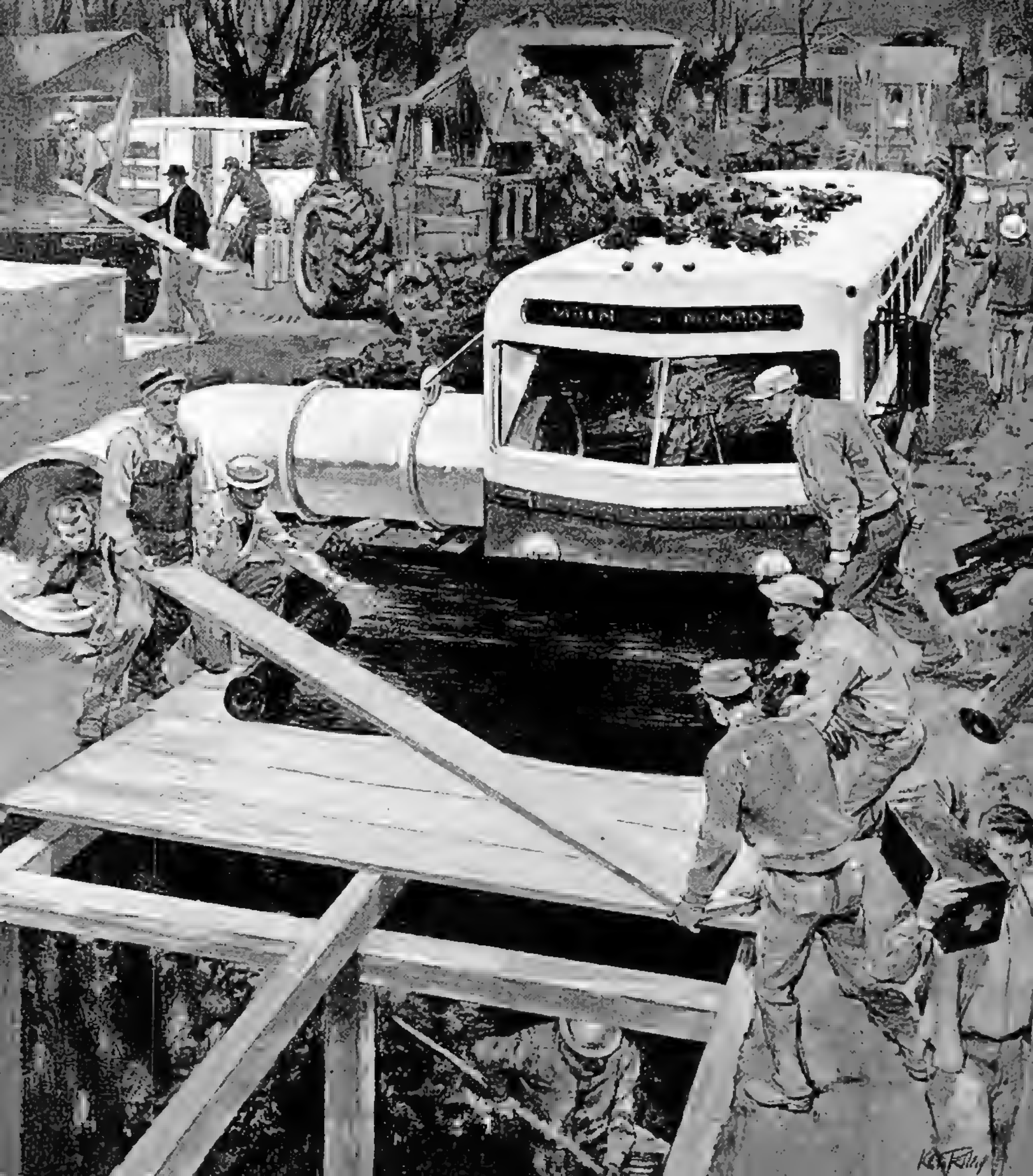
Microwave Radio Terminal Station
Site 6 - "Cadre/Creed"

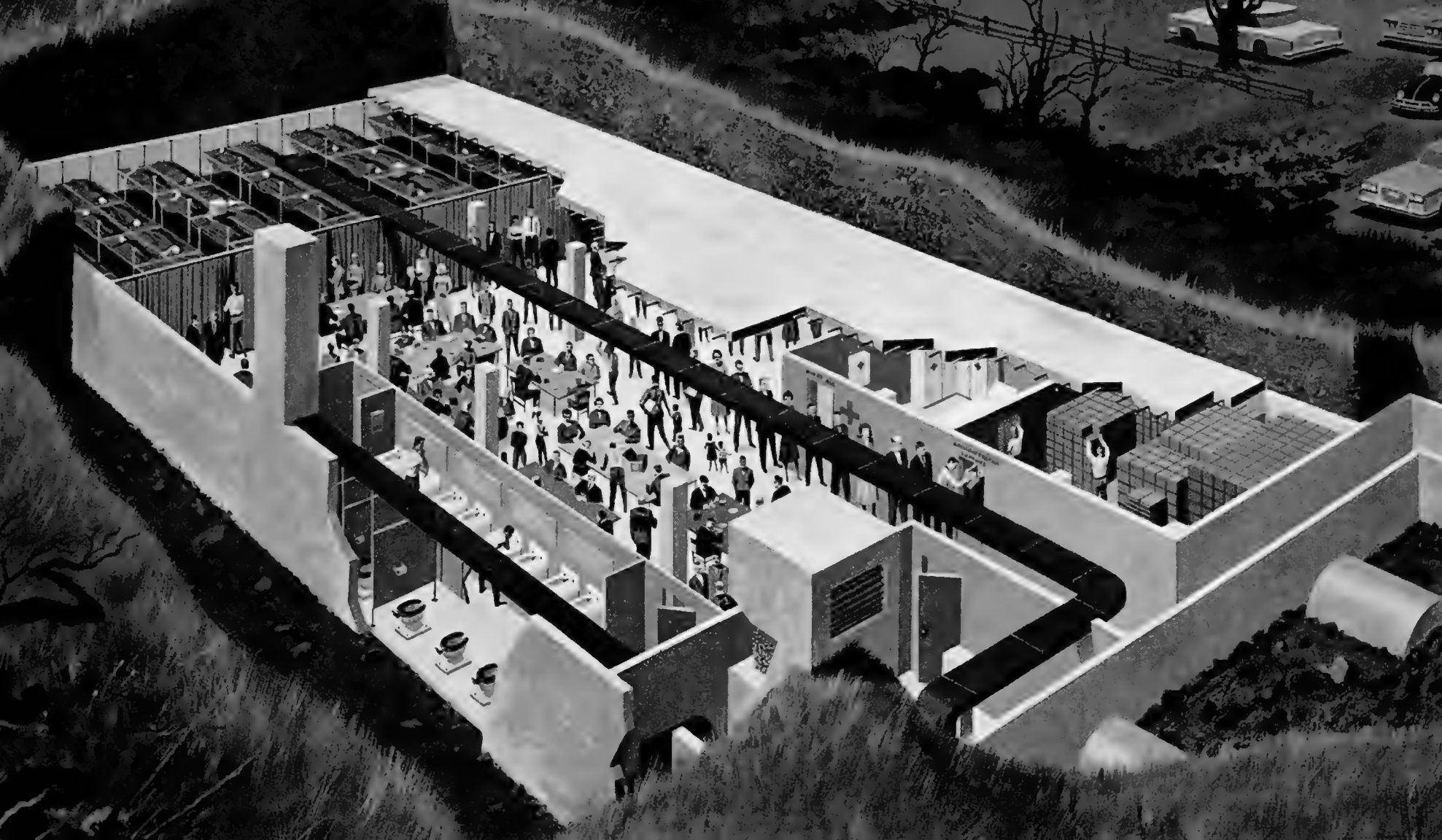
Cross Section View of Tower



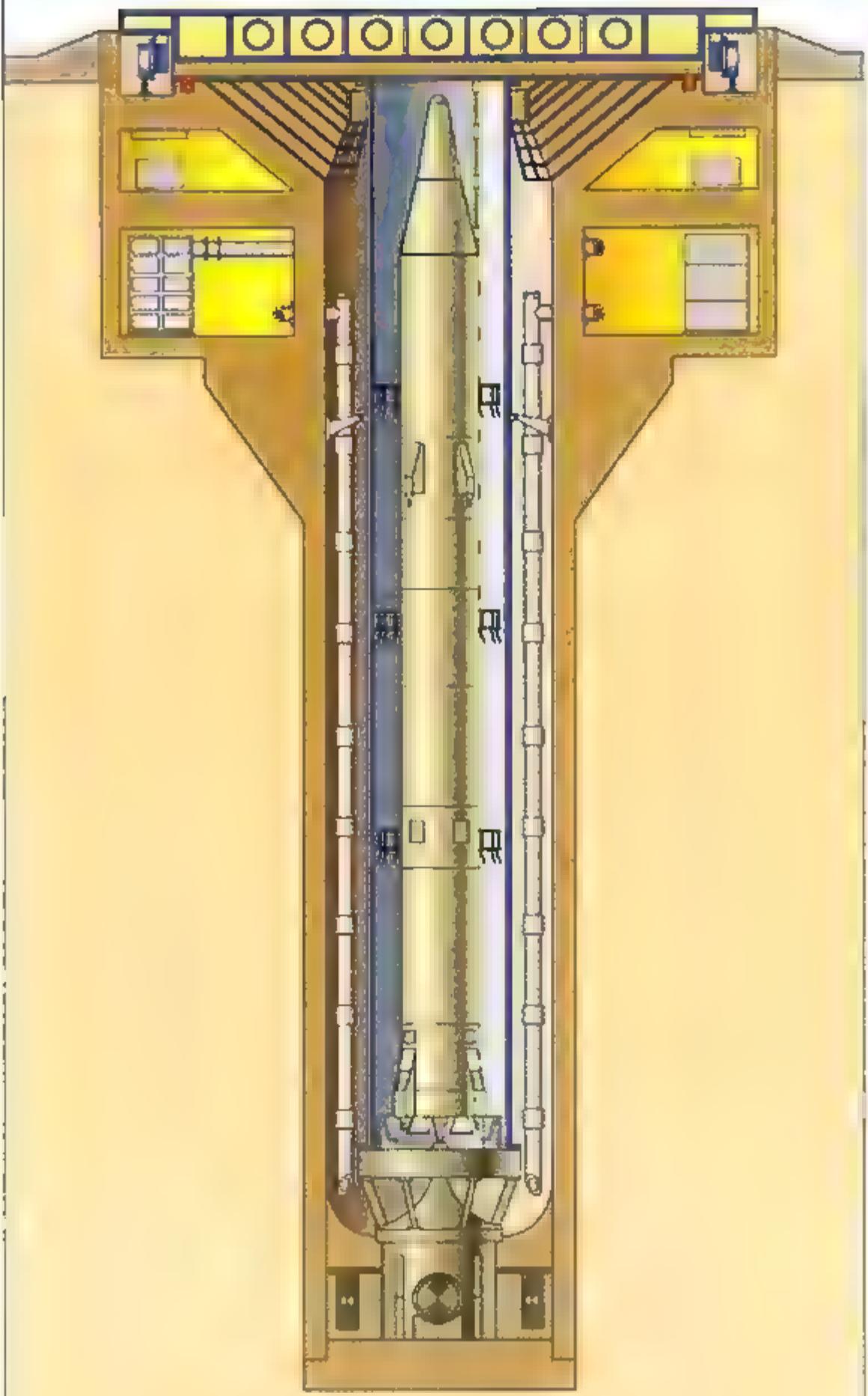
SOME PROTECTION ABOVE GROUND

If they are far enough from the blast to avoid obliteration, many apartment and office buildings could provide fallout shelter. Some are of fireproof construction though this would not help in a firestorm. As protection against radiation, people taking shelter in them should put as much space and mass between themselves and the fallout particles as possible. Like the people in this drawing, they should head for the center or basement of the building, not the top and ground floors. They should avoid the floors with setbacks and next-door roofs, where particles would settle, unless several walls are between them and the exterior. Safe areas vary with construction. The government is now making a survey of existing buildings to find and mark fallout shelter spaces and stock them. Also valuable would be an auxiliary power plant, as shown in basement.

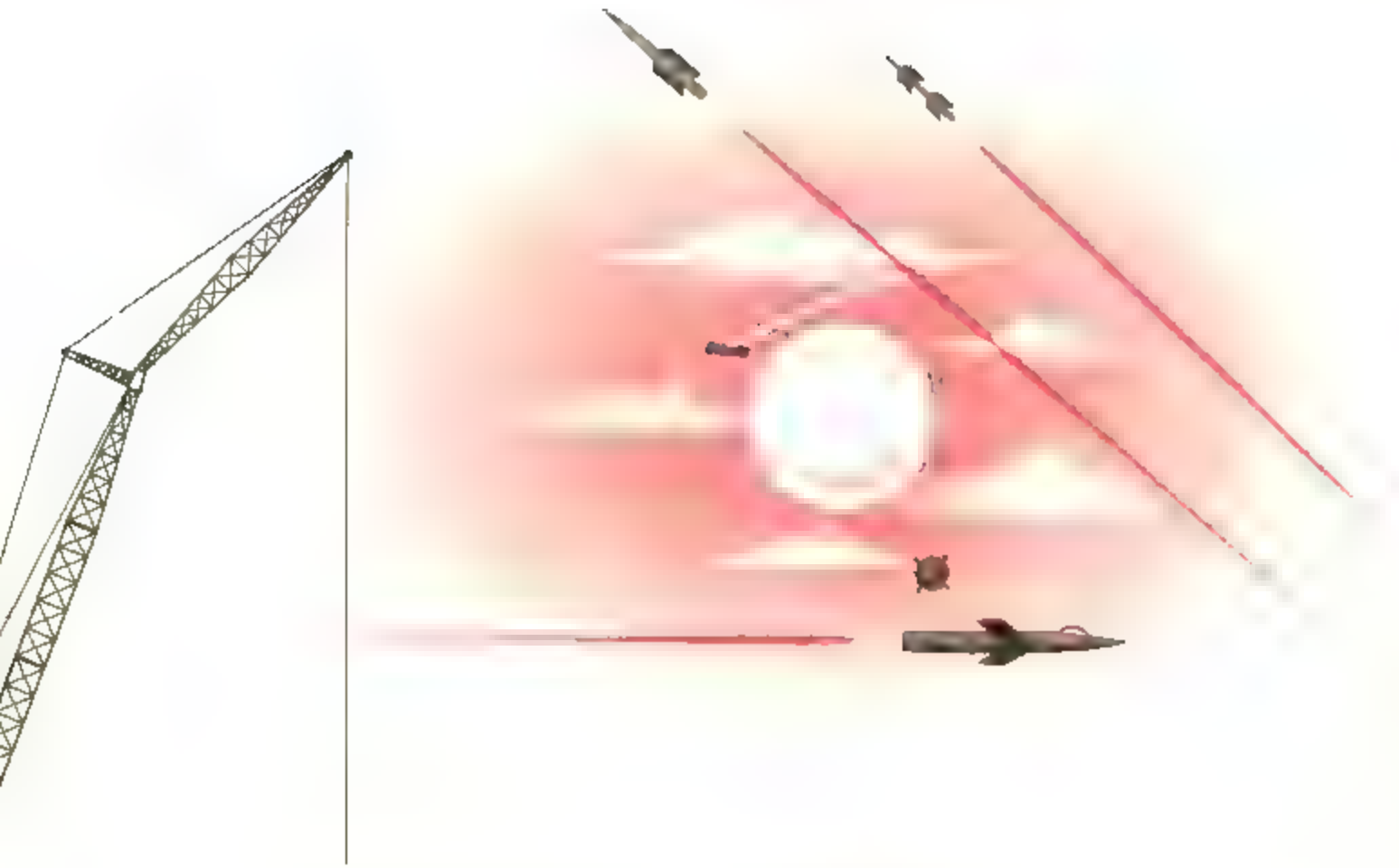




KEEP OUT



Пусковая установка ракеты Р-36



RADIO CONSTRUCTION COMPANY, Inc.

Our Services . . . the complete installation of
Towers for radio, microwave, and television Antennas for radar missile tracking, tropospheric scatter and radio astronomy Special structures.

Our Specialty working to rigidly accurate tolerances in setting steel, plus the mechanical and electrical installations involved in the completion of these structures

Our Qualifications . a record of hundreds of successful installations in the United States and several foreign countries. Skilled personnel with years of experience in this specialized work Strict adherence to the customer's specifications and schedule.

This booklet illustrates typical projects that Radio Construction Company, Inc has been called upon to erect The inside back cover lists some of the customers whose names we offer as reference regarding the capabilities of our company

If you will give us the opportunity to inspect the plans of your next job, we will be pleased to send you our recommendations and estimates at absolutely no obligation Kindly direct all inquiries to Radio Construction Company, Inc , 1205 Manor Bldg., 564 Forbes Ave., Pittsburgh 19, Pennsylvania.

ERECTORS
ENGINEERS
CONTRACTORS

RADIO CONSTRUCTION COMPANY Inc.

PITTSBURGH, PA.
DETROIT, MICH.

RCC

COMPLETELY FORMED PLASTIC
EASY TO BUILD
READY TO PAINT

STAND FROM DECAL SHEET

Revell
Authentic Kits

AIRBORNE MARINES

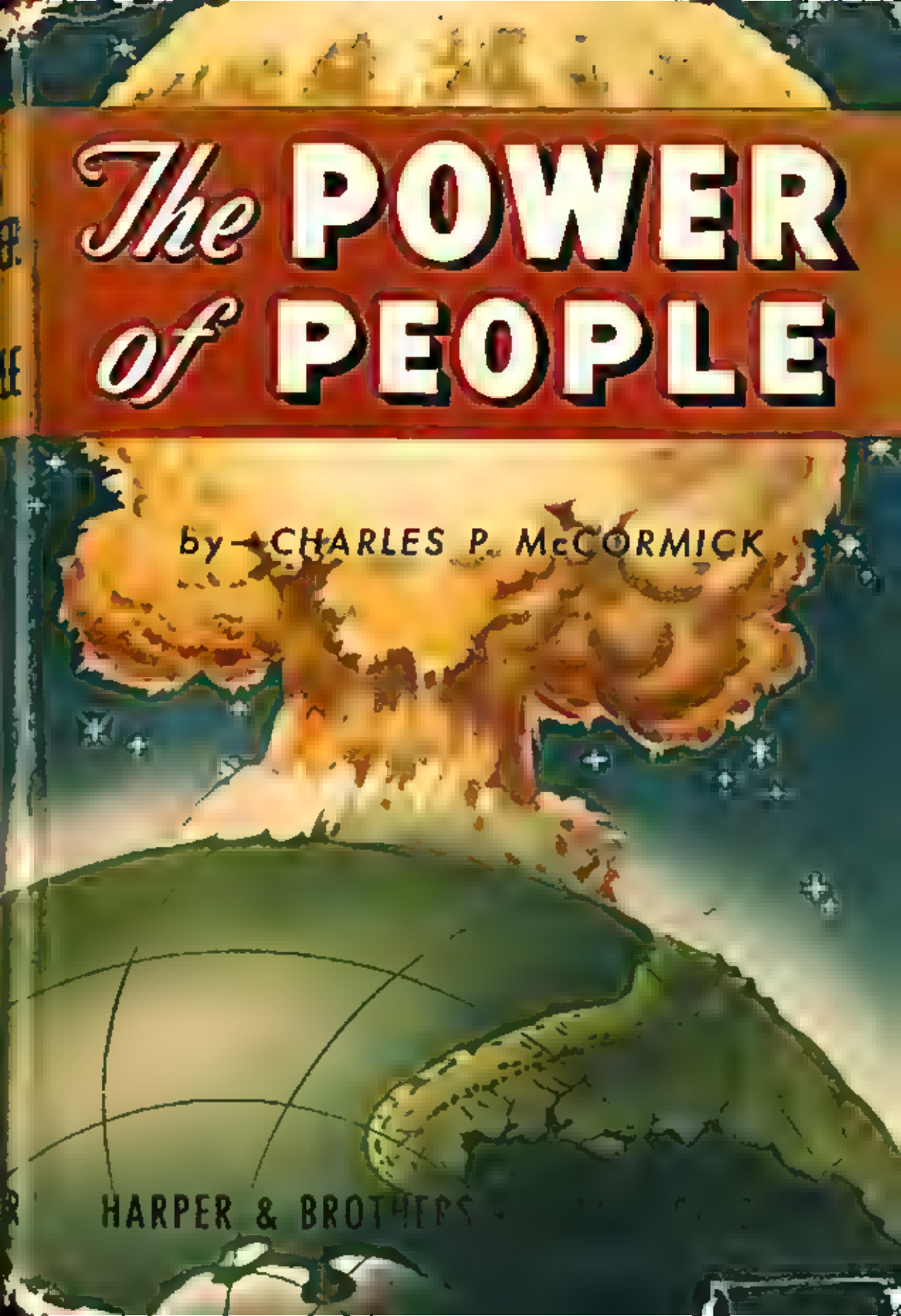
GIFT SET
2
MARINE AIRCRAFT
MODELS TO BUILD
• A4D MARINE SKYHAWK
• HUS 1 MARINE HELICOPTER

THE UNTHINKABLE BECAME A REALITY AND ONE SEPTEMBER AFTERNOON CIVILIZATION COMMITTED SUICIDE.

ALL THAT THE WORLD HAD BEEN WAS NO MORE. IN ITS PLACE WAS A WORLD OF DEATH AND DESPAIR

The POWER of PEOPLE

by CHARLES P. McCORMICK



HARPER & BROTHERS

Equipment is also provided for contact between key world-wide military communications ground stations and the Presidential plane. This equipment affords an opportunity for key persons within the Government to keep in touch with the plane by a secure teletypewriter service and non-secure voice.

The President's communications needs are frequently known only a short time before the services have been required. Therefore, in some instances Presidential communications are not programmed for and budgeted. Under these circumstances, resources have to be diverted from some of the lower priority objectives.

Two examples of this are:

1. The communications cost for President Eisenhower's trip to Alaska, Philippines, Japan and Hawaii was $240,000. Although the President did not actually go to Japan, the necessary communications were installed beforehand.
2. The former President's trip to South America required direct telephone and teletypewriter circuits from the White House to Puerto Rico and to other points in South America. The cost of communications for this trip was $361,000.

DECLASSIFIED
Authority NND974324
By WDP Date 4-5-02

The third area of communications at the National level pertains to the AJCC at Fort Ritchie. The AJCC-Fort Ritchie complex is the relocation site for the Secretary of Defense, the Joint Chiefs of Staff, the National Security Council and elements of each of the Military Departments. The center is so designed as to provide communications support for 6,000 people during a full scale occupancy under emergency conditions. Approximately half of the people would be underground at the AJCC site itself, and the other half would be above ground within Fort Ritchie, Maryland.

Within the underground site, key persons have access to a secure dial telephone system which, within the underground only, provides Top Secret voice communications. The AJCC connects to the Bell Telephone, nation-wide direct distance dialing system, which permits non-secure direct distance dial calls throughout CONUS and Canada without telephone company intervention.

DECLASSIFIED
Authority NND974324
By WDP Date 4-5-02

LIFE

HOW YOU CAN SURVIVE FALLOUT

97 out of 100 people can be saved . . .
Detail plans for building shelters . . .

AND A LETTER TO YOU FROM PRESIDENT KENNEDY

CIVILIAN FALLOUT SUIT

SEPTEMBER 15 · 1961 · 20¢

Copyrighted material

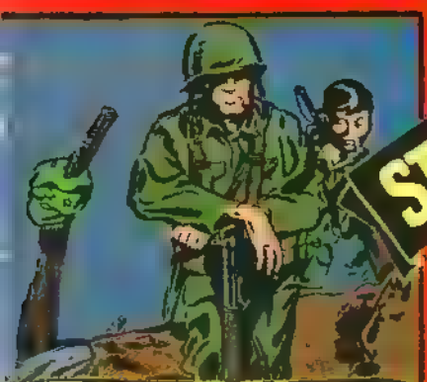
SPINE-TINGLING EXPLOITS OF BUCK VINSON IN THE WAR OF WARS

ANC

ST. JOHN

ATOM-AGE COMBAT

STRANGER THAN FICTION

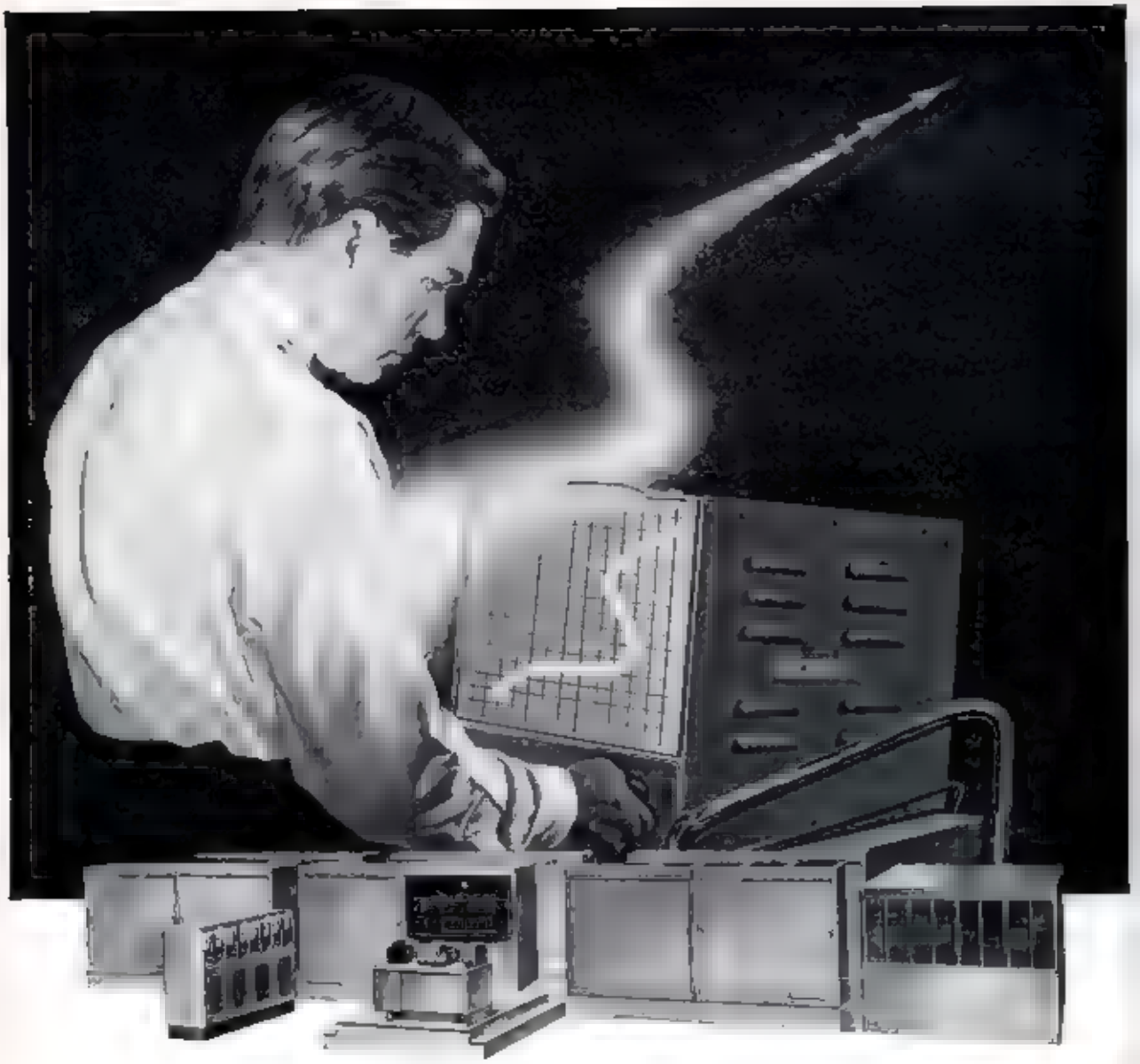


FIGHTIN' U.S. MARINES AT ZERO HOUR

DANGER FLIGHT

COMMANDOS BLITZ A RED INVASION

No. 1 TEN CENTS



The Univac Scientific Computing System

Operation in Real-Time . . .

In the field of missile development, there's *only one* commercially available digital computer capable of real-time performance—the famous Univac® Scientific. It's the ideal system for flight simulation and for on-line data reduction. It solves complex problems from purely sensed data at speeds that are compatible with real-time control.

Because of its ability to reduce large volumes of data at tremendous speeds, the Univac Scientific System easily handles even the most difficult research problems. Furthermore, it offers many other outstanding characteristics, including superb operating efficiency obtained through large storage capacity, great programming versatility, the ability to operate simultaneously with a wide variety of input-output devices, and far greater reliability than any computer of its type.

For more information about the Univac Scientific System or for information about ways in which you might apply the system to your particular problems, write on your business letterhead to . . .

ROOM 1315, 315 FOURTH AVE., NEW YORK 10

Remington Rand Univac

DIVISION OF SPERRY RAND CORPORATION

Now you can protect precious lives with

An all-concrete blast-resistant house

Here's a house with all the advantages of any concrete house—PLUS protection from atomic blasts at minimum cost.

A fire-safe, attractive, *low-annual-cost* house, it provides comfortable living—PLUS a refuge for your family in this atomic age.

The blast-resistant house design is based on principles learned at Hiroshima and Nagasaki and at Eniwetok and Yucca Flats. It has a reinforced concrete first floor and roof and reinforced concrete masonry walls. The walls, the floor and the roof are tied together securely with reinforcement to form a rigidly integrated house that the engineers calculate will resist blast pressures 40% closer to bursts than conventionally-built houses.

Anywhere in the concrete basement of the house would be much safer than above ground but a special shelter area has been provided in this basement to protect occupants from blast pressures expected at distances as close as 3,600 feet from ground zero of a bomb with an explosive force equivalent to 20,000 tons of TNT. This shelter area affords protection from radiation, fire and flying debris as well. And the same shelter area also can serve as a refuge from the lesser violence of tornadoes, hurricanes and earthquakes.

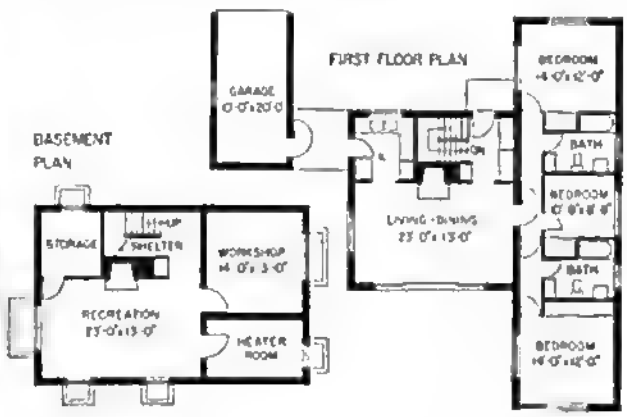
The safety features built into this blast-resistant house are estimated by the architect and engineer to raise the cost less than 10%.

Concrete always has been known for its remarkable strength and durability. That's why it can be used economically to build houses with a high degree of safety from atomic blasts.

Like all concrete structures, blast-resistant concrete houses are moderate in first cost, require little maintenance and give long years of service. The result is *low-annual-cost* shelter. Write for folder.

PORTLAND CEMENT ASSOCIATION
Dept. A6-9, 33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work.

Interiors of a blast-resistant house have all the charm and livability of conventional homes.



ONLY A STRONG AMERICA CAN PREVENT

NOV.
10¢

ATOMIC WAR!

ACE

ONLY A STRONG AMERICA CAN PREVENT

FEB.
10c

ATOMIC WAR!

ACE

ONLY A STRONG AMERICA CAN PREVENT

PR.
10c

ATOMIC WAR!

ACE

Get Your Official Civil Defense Identification Tag

See Your Grocer for Details

JOHN H DOE JR
JOHN H DOE
SUE MARY BE
MARRIED ONLY
ONCE

LIFE

In this issue

IF WE SHOULD HAVE TO FIGHT AGAIN

by GENERAL CARL SPAATZ

F-84 THUNDERJETS

JULY 5, 1948 20 CENTS
YEARLY SUBSCRIPTION $6.00

What Has Legs and Lifts Eggs?

Everybody knows that spring brings bugs, but this is too much. The hulking monster delicately handling an egg is a new species of crawler which its inventors call "the beetle." Built for the Air Force Special Weapons Center by General Electric, the 85-ton beetle is both tough and gentle and versatile as well. Its mechanical arms can bash through a thick concrete wall or pick up an egg without breaking it. The beetle's normal job, however, will be to handle not eggs but dangerous machines. The Air Force will put it to work tending nuclear-powered rockets which can become violently radioactive. The beetle will carry an operator up to these rockets, but a foot of lead will shield him from radiation while a two-foot-thick window between the arms will let him see what he is doing. He will be able to make the beetle stand up, swivel, turn knobs and switches, and even use power tools.

A Beetle

CONTINUED

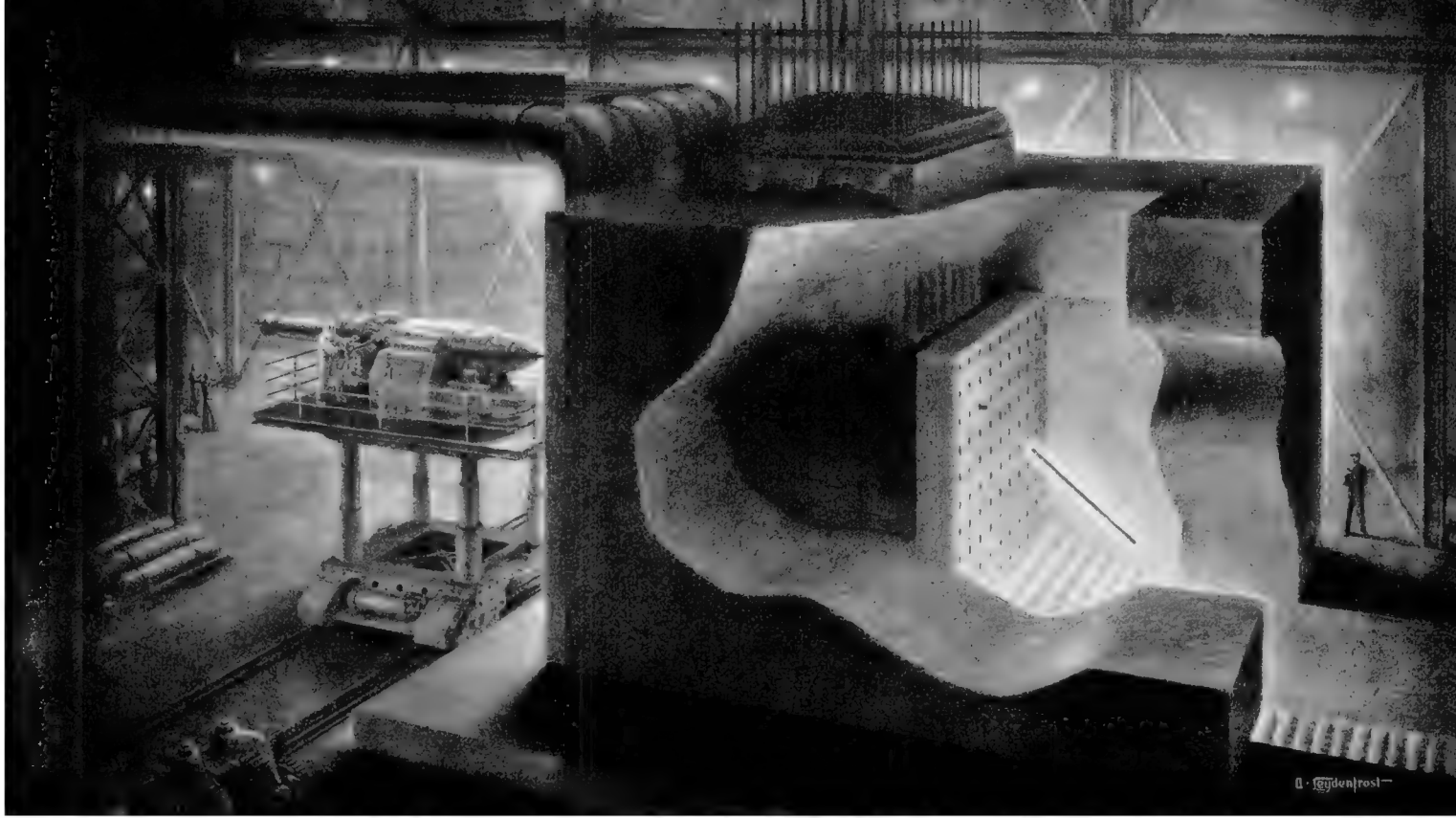
PLUTONIUM IS PRODUCED IN ATOMIC PILES

The manufacture of plutonium for atomic bombs, carried on at the great Hanford works (*pp. 96, 97*), involves two major steps: the "cooking" of uranium rods in a pile (*right*) and the chemical extraction of the plutonium which the cooking produces in the rods (*below*).

The piles in which uranium is treated are gigantic blocks of graphite, honeycombed with aluminum tubes. In these tubes are placed slender rods of natural uranium, which contain about 99% U-238 and 1% U-235. Fission occurs spontaneously in a few of the U-235 atoms in the rods, and each fission throws out two or three neutrons moving at high speed. Normally (that is, when the rods are not in a pile) these fast neutrons are either absorbed by the U-238 atoms around them, which are thus converted into plutonium, or stray out of the rod into the air where they are lost. The reaction stops, for there are no more neutrons to keep it going. But in a pile the neutrons are slowed down as they pass through the surrounding graphite. By the time they come to other rods of uranium they have lost so much speed that only part of them are taken out of circulation by becoming imbedded in U-238 atoms. Those that remain also strike atoms of U-238, but because of their low velocity they hit lightly and bounce off to travel through the pile until they strike and split one of the rare U-235 atoms. This fission releases two or three more neutrons. In this way a controlled chain reaction builds up, with some neutrons making U-238 into plutonium and others causing the fission needed to keep the reaction going.

If this process of continuous fission were left uncontrolled, it could build up to the point where the uranium in the pile might melt. To prevent this, long rods of cadmium are lowered into the pile where they soak up neutrons and thus slow the operation. Any desired level of activity can be obtained by raising or lowering these rods.

The reaction proceeds until most of the U-235 atoms have been split. At this point the uranium rods, now highly radioactive, are removed and sent through a water-filled tunnel to the "canyons"—the separation plants—where they are dissolved in acid. The small amount of plutonium contained in each is then separated out and sent in pure form to the weapons laboratories at Los Alamos, N. Mex.



AN ATOMIC PILE is shown above in a cutaway drawing based on descriptions contained in the *Smyth Report* and published sketches. Actual piles are similar to this one in their general construction but differ in many details. Graphite core of the pile must be surrounded by a heavy wall of concrete to contain dangerous radioactivity. Water, which is needed in vast quantities to cool the pile, comes in through large pipes like those at left and then flows through aluminum tubes that contain the rods. When rods are ready to be removed, they may be pushed out of the pile by a mobile ram something like the one shown at left, which also pushes new rods in. Conveyor (*lower right*) carries rods away to separation plant. The cadmium rods which are used to control the intensity of the pile are shown here protruding from its top.

PLUTONIUM PRODUCTION, from pile to separation plant, is outlined in this highly schematic drawing. Actual processes inside the canyon are not known, and all details are completely conjectural. Highly radioactive rods are shown emerging from the pile at left, then passing through a tunnel factually several miles long) into the canyon. Here they are placed in vats of acids to dissolve. The resultant solution goes through a number of different processes, all of which are carried out by remote control. Fluid radioactive wastes go out of the canyon into special storage tanks, some underground, some on the surface (*right*). "Hot" gases are released through tall chimney.

CONTINUED ON NEXT PAGE

THE HANFORD PLANT, where all the plutonium for A bombs is produced, stretches for miles along the valley of the Columbia River north of Richland, Wash. This drawing, which gives a general impression rather than the exact layout of the site, is based on the following published facts: 1) that the plants are located between 25 and 40 miles from Richland (General L. R. Groves in *The Military Engineer*, June, 1946, 2) that the buildings are placed several miles apart (*Smyth Report* Chap. 8, par. 51). The appearance of the buildings (whose size is here exaggerated for clarity) and the proximity of the pile areas to the river are known from photographs which have been published by the government. The number of pile areas and corresponding separation plants is presumably six: General Groves, in the magazine article mentioned above, referred to five production plants then in operation at Hanford, and a few weeks ago the Atomic Energy Commission announced the completion of an additional pile. Each pile and its separation plant form a single unit which operates independently of all the others. The pile area contains a number of structures including the pile itself (large central building with elaborate superstructure); pumping and filtering plants to handle the millions of gallons of water required daily to cool the pile; and large, pondlike retaining basins in which the slightly radioactive water that has passed through the pile is kept until it can safely be returned to the river. The separation plant, to which the uranium rods are sent underground after they have been "cooked" in the pile (*pp. 94, 95*), is several miles away. (Only five of the six separation plants are shown above.) The long, low building in each separation plant is the semisubterranean canyon where rods are dissolved and their plutonium content extracted. Near each canyon is a pool to which some of the fluid radioactive wastes formed during the process are pumped. Gaseous wastes are released from tall chimneys when the wind is right.

COPYWRITTEN MATERIAL

CONTINUED ON NEXT PAGE

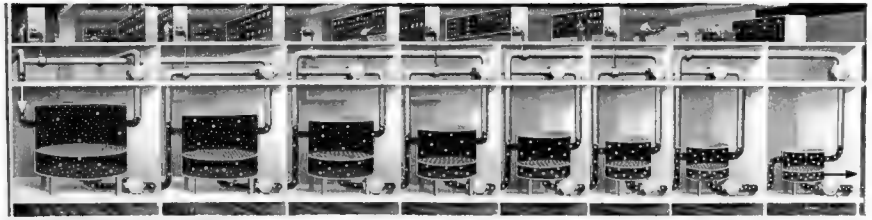
THE K-25 PLANT is a low, half-mile-long structure. Its external appearance is known from aerial views that have been published, but the details of its construction (such as the odd objects on its roof) and of its interior layout have never been released. However, some facts about its intricate operation have been disclosed. The multistage diffusion system covers one of the lower floors, its pipe gallery the floor above. Both floors, whose volume exceeds 6 million cubic feet, are completely sealed and kept at an even temperature. Operations are remotely controlled by instruments on the top floor of the building which are checked by operators who make their rounds on bicycles.

K-25 PLANT AT OAK RIDGE PRODUCES U-235

Part of the nation's supply of fissionable material for bombs comes from the Hanford piles; the rest is produced in a city-sized building, cryptically called K-25, which sprawls across a broad valley near Oak Ridge, Tenn. Unlike the production piles, which use the small amount of U-235 present in ordinary uranium to create the fissionable element plutonium, K-25 separates the U-235 itself from its more common twin. Since U-235 is an isotope of uranium (*pp. 92, 93*) it has the same chemical properties as U-238; and therefore it is almost impossible to separate the two chemically (as plutonium is separated from uranium). The only physical difference between them is weight, and it is this difference that makes possible the gaseous diffusion process which is the basis of the K-25 operation.

In the gaseous diffusion process, uranium metal, including its .7% of U-235, is made into gas. This gas is pumped into one end of a chamber which is divided in two by a thin porous barrier, a kind of atomic sieve, which is pierced with billions of submicroscopic perforations. The barrier has a filtering action; the gas molecules which contain U-235, being lighter than those containing U-238, move about faster and a greater proportion of them strike the barrier and pass through the perforations into the second compartment. This gas, now slightly richer in U-235, is pumped into another chamber, where the process is repeated, then on through chamber after chamber until most of the U-238 is strained out. So slight is the filtering effect at each stage that the gas must pass through hundreds of acres of barriers and thousands of miles of pipe before it is sufficiently purified.

K-25 is the largest continuous-process plant in the world. An industrial leviathan, completed in 1945 at a cost of $500 million, it grew out of experimental laboratory work conducted at Columbia University. Its separation system, once considered far too complex to be engineered (specifications for K-25 fill 20,000 pages), has proven to be practical—so much so that an addition, K-27, has already been completed and still another, K-29, is under construction.



EXPLANATION OF GASEOUS DIFFUSION process is given by this hypothetical and simplified diagram. Gas containing natural uranium, 99.3% U-238 (small dots) and .7% U-235 (large dots), is pumped into top of first chambers (*left*). About half of it diffuses down through the porous barrier into the lower compartment, from which it is pumped into the top of the second chamber. Half of this enriched gas is diffused through the second barrier and sent on to the third chamber. The rest, now partially depleted, is pumped back to the preceding chamber to be run through again. This pattern is repeated at each of the thousands of stages involved in the separation process.

COPYWRITTEN MATERIAL

CONTINUED ON NEXT PAGE

THE AMERICAN
LEGION
MAGAZINE NOV. 1951

IN THIS ISSUE

→ SEE PAGE 11

DO COLLEGES HAVE TO HIRE RED PROFESSORS?

By LOUIS F. BUDENZ

Parents can rid campuses of communists who cloak themselves in "academic freedom."

JOHN WAYNE AS COLONEL DAVID CROCKETT FIGHTING AT "THE ALAMO"

AN OPEN LETTER TO JOHN WAYNE ON THE OCCASION OF THE 124th ANNIVERSARY OF THE ALAMO: MARCH 6, 1960

We have heard and read of the great and deserved award which the State of Texas, through The Headliners Club and Governor Price Daniel, has bestowed upon you; an award bearing this inscription:

To JOHN WAYNE

Who has made motion picture stardom one of the very great professions;

Who has made "The Alamo" an international symbol of man's undying fight for freedom.

To these words we would like to add this prophecy: through your motion picture of the memorable story of the Alamo you will be reminding a world, one-half of which is enslaved, that 124 years ago, 185 men joined in an immortal suicide pact not to retreat nor surrender when encircled by 7000 troops of an enemy dictator and thus bought with their lives 13 days of precious time needed by General Sam Houston to prepare for Texas' final and victorious battle for liberation.

We believe with you that the world—and our own nation—needs to be reminded that freedom does not come cheap and easy.

H. H. COFFIELD
JOHN MECOM
GLENN McCARTHY
FRANK WATERS
VERNON FROST
AL PARKER
O. J. McCULLOUGH
I. J. McCULLOUGH

From murals by Andrew Karoly and Louis Szanto in home office of Farm Bureau Insurance Companies

PLENTY... *Pattern for Peace*

There *are* moral alternatives to war. We *do* have a choice. We can choose plowshares over swords . . . and thereby diminish the danger of a final and all-destroying war.

Most of the world's people – nearly two-thirds of the human race – are hungry. Remove this hunger, and we remove most of the explosive possibilities in the world.

We, here in America, have crossed the threshold into the world of plenty. In the past ten years we have had twice as much new food as new people – and our population has grown at a rate faster than that of India!

This American pattern of plenty gives us the tool with which we, in decency and humility, can help build a true brotherhood of man, living together peacefully in a prosperous world. Now, for the first time, we can help a hungry world to feed itself. We will achieve peace only if we carry out this moral responsibility – wholeheartedly, with the same vigor with which we have waged wars. It is up to us.

If we start now–in politics, in economics, in social organization – we can make abundance blossom for all the world.

Let us embark on the crusade toward creating PLENTY– *Pattern for Peace.**

**From a recent address by Murray D. Lincoln, president of Farm Bureau Insurance Companies. If you would like to have a free copy of the complete text, send a request to our home office–Columbus 16, Ohio.*

Serving nearly two million families with sound insurance protection

FARM BUREAU INSURANCE COMPANIES

FARM BUREAU MUTUAL AUTOMOBILE INSURANCE COMPANY • FARM BUREAU MUTUAL FIRE INSURANCE COMPANY • FARM BUREAU LIFE INSURANCE COMPANY

Services available in Ohio, New York, Pennsylvania, Delaware, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Vermont, Rhode Island, Connecticut, Washington, D.C., HOME OFFICE • COLUMBUS, OHIO

YOUR CAR AND CIVIL DEFENSE

4 wheels to survival

FEDERAL CIVIL DEFENSE ADMINISTRATION

ALERT TODAY

ALIVE TOMORROW

Support NATIONAL

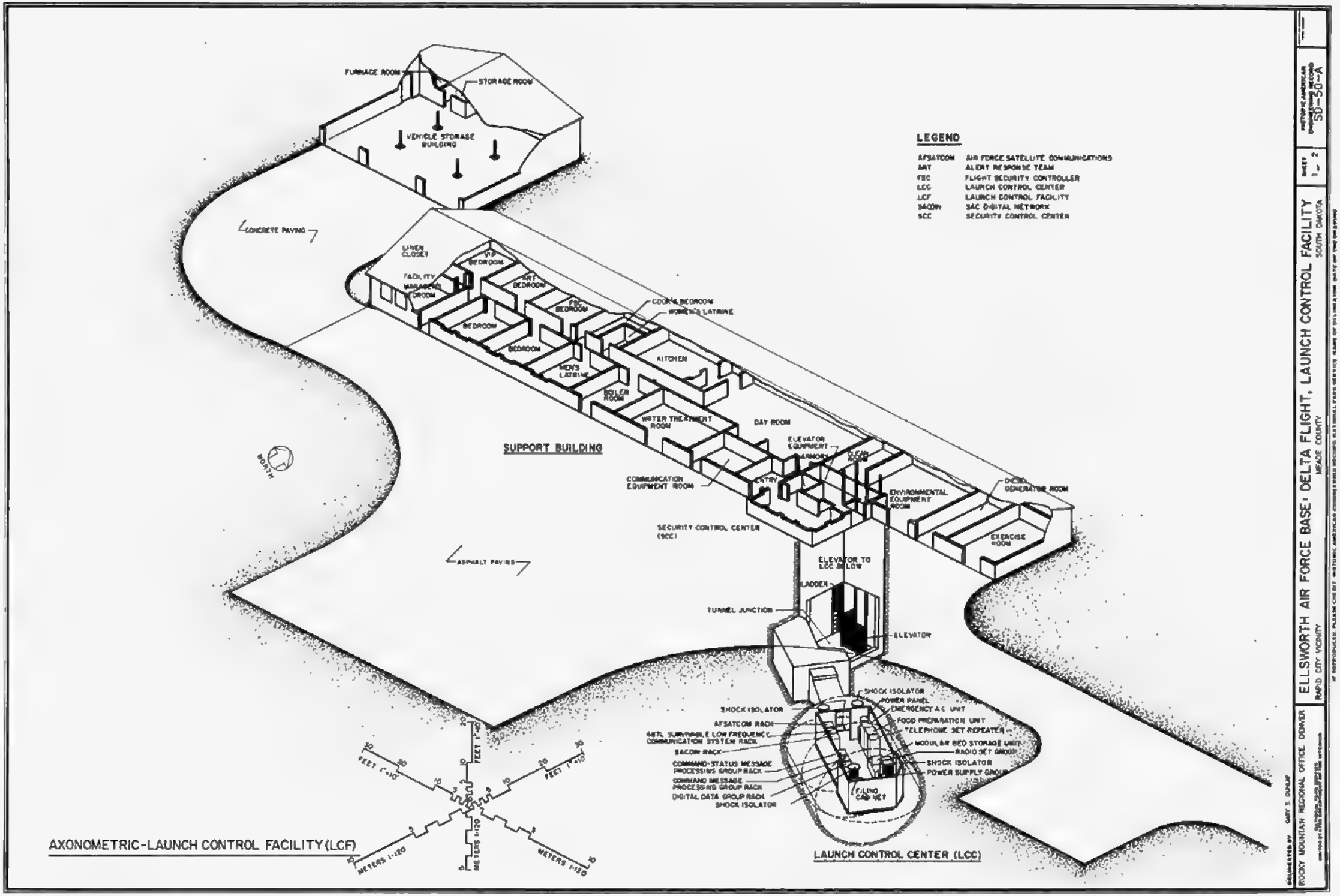
CIVIL DEFENSE WEEK

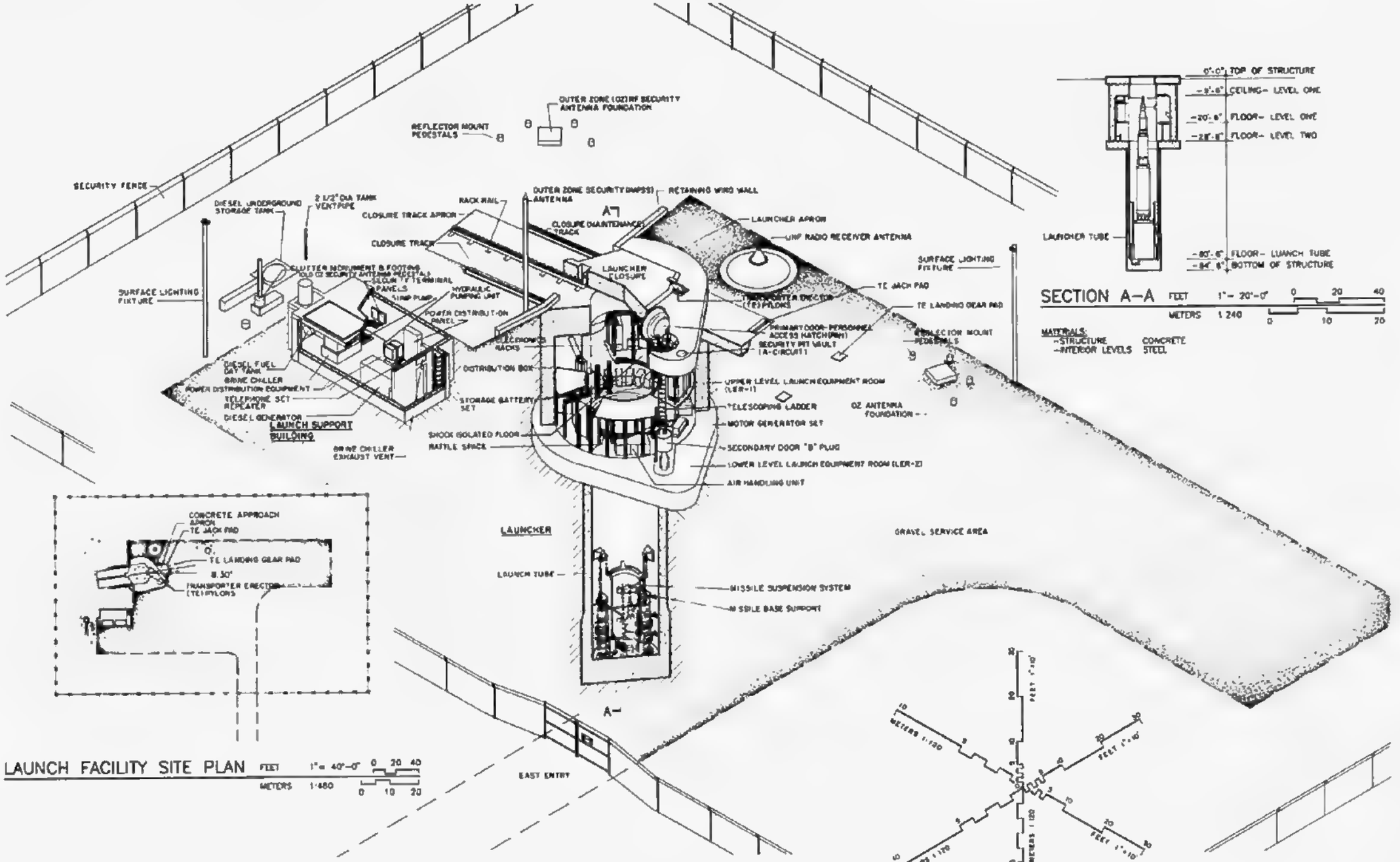
SEPTEMBER 9-15, 1956

ATOMIC blast creates FIRE

are YOU prepared?

FEDERAL CIVIL DEFENSE ADMINISTRATION


LEGEND
AFSATCOM AIR FORCE SATELLITE COMMUNICATIONS
ART ALERT RESPONSE TEAM
FSC FLIGHT SECURITY CONTROLLER
LCC LAUNCH CONTROL CENTER
LCF LAUNCH CONTROL FACILITY
SACDN SAC DIGITAL NETWORK
SCC SECURITY CONTROL CENTER
FURNACE ROOM
STORAGE ROOM
VEHICLE STORAGE BUILDING
CONCRETE PAVING
LINEN CLOSET
VIP BEDROOM
FACILITY MANAGER'S ROOM
ART BEDROOM
FSC BEDROOM
BEDROOM
BEDROOM
MEN'S LATRINE
COOK'S BEDROOM
WOMEN'S LATRINE
KITCHEN
BOILER ROOM
WATER TREATMENT ROOM
DAY ROOM
ELEVATOR EQUIPMENT
ARMORY
CLEAN ROOM
COMMUNICATION EQUIPMENT ROOM
ENTRY
ENVIRONMENTAL EQUIPMENT ROOM
DIESEL GENERATOR ROOM
EXERCISE ROOM
SECURITY CONTROL CENTER (SCC)
SUPPORT BUILDING
ASPHALT PAVING
ELEVATOR TO LCC BELOW
LADDER
TUNNEL JUNCTION
ELEVATOR
SHOCK ISOLATOR
POWER PANEL
EMERGENCY A.C. UNIT
SHOCK ISOLATOR
AFSATCOM RACK
FOOD PREPARATION UNIT
"TELEPHONE SET REPEATER
44TH SURVIVABLE LOW FREQUENCY COMMUNICATION SYSTEM RACK
MODULAR BED STORAGE UNIT
SACDN RACK
RADIO SET GROUP
COMMAND-STATUS MESSAGE PROCESSING GROUP RACK
SHOCK ISOLATOR
POWER SUPPLY GROUP
COMMAND MESSAGE PROCESSING GROUP RACK
FILING CABINET
DIGITAL DATA GROUP RACK
SHOCK ISOLATOR
LAUNCH CONTROL CENTER (LCC)
AXONOMETRIC-LAUNCH CONTROL FACILITY(LCF)
FEET 1:40
FEET 1:40
FEET 1:40
METERS 1:120
METERS 1:120
METERS 1:120
ROCKY MOUNTAIN REGIONAL OFFICE DENVER
ELLSWORTH AIR FORCE BASE: DELTA FLIGHT, LAUNCH CONTROL FACILITY
RAPID CITY VICINITY
SOUTH DAKOTA
MEADE COUNTY
SHEET 1 of 2
HISTORIC AMERICAN ENGINEERING RECORD
HAER SD-50-A



HISTORIC AMERICAN ENGINEERING RECORD
SD-50-C

SHEET 1 OF 1

ELLSWORTH AIR FORCE BASE: DELTA FLIGHT, LAUNCH FACILITY
MEADE COUNTY
RAPID CITY VICINITY
SOUTH DAKOTA

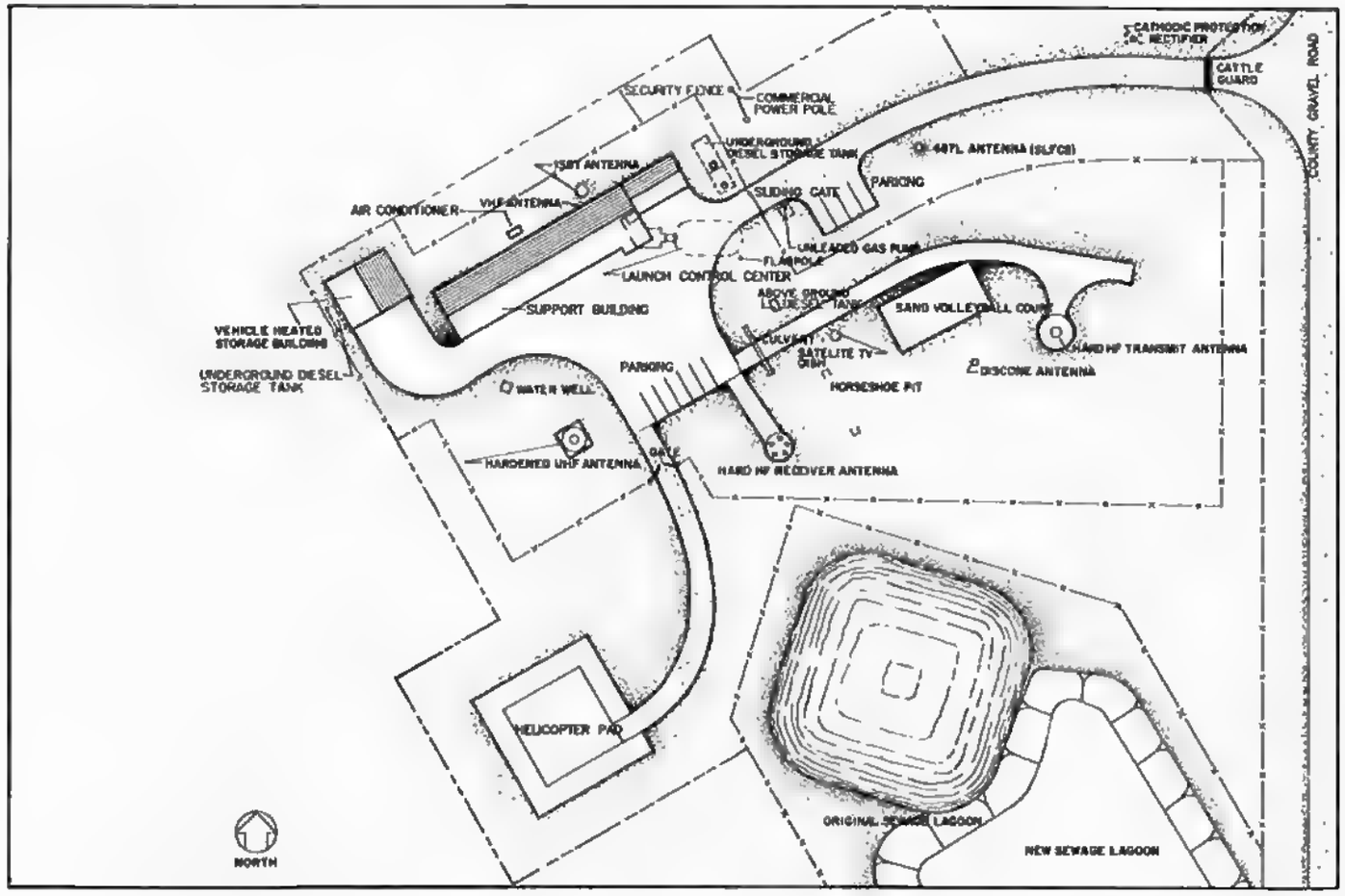
ROCKY MOUNTAIN REGIONAL OFFICE DENVER

PREPARED UNDER HAER CREDIT: HISTORIC AMERICAN ENGINEERING RECORD, NATIONAL PARK SERVICE. NAME OF DELINEATOR DATE OF THIS DRAWING

ELLSWORTH AIR FORCE BASE, DELTA FLIGHT MINUTEMAN II INTERCONTINENTAL BALLISTIC MISSILE (ICBM)

THE MINUTEMAN ICBM CONSTITUTED ONE OF THE MOST TECHNOLOGICALLY SIGNIFICANT STRATEGIC WEAPON SYSTEMS DEVELOPED DURING THE COLD WAR. THE FIRST MINUTEMAN MISSILE WAS PLACED ON ALERT AT MALMSTROM AIR FORCE BASE, MONTANA, ON 27 OCTOBER 1962, IN THE MIDST OF THE CUBAN MISSILE CRISIS. PRESIDENT JOHN F. KENNEDY REFERRED TO THE FIRST DEPLOYED MINUTEMAN MISSILE AS HIS "ACE IN THE HOLE" FOR DEALING WITH THE SOVIETS. COMPARED TO ATLAS AND TITAN I, THE FIRST GENERATION OF LIQUID-FUELED ICBMS, THE MINUTEMAN WAS A SIMPLE, LIGHTWEIGHT, RELIABLE, SOLID-FUELED MISSILE, INEXPENSIVE TO BUILD AND MAINTAIN, AND QUICK TO LAUNCH. MINUTEMAN COULD DELIVER A NUCLEAR WARHEAD A CONTINENT AWAY IN ABOUT A HALF-HOUR. THUS, IN ITS HARDENED AND DISPERSED DEPLOYMENT, MINUTEMAN GAVE THE UNITED STATES ITS FIRST TRUE, PUSH-BUTTON (OR, LITERALLY, TURN-KEY) NUCLEAR WARFARE CAPABILITY, AND FIRMLY PUT TO REST ANY NOTION OF A "MISSILE GAP" WITH THE SOVIET UNION. BY 1973, A NEW VERSION OF THE MISSILE, MINUTEMAN II, WITH ITS INCREASED FLIGHT RANGE, IMPROVED ACCURACY, AND OTHER TECHNOLOGICAL IMPROVEMENTS, HAD REPLACED MINUTEMAN I. THIS HISTORIC AMERICAN ENGINEERING RECORD (HAER) DOCUMENTS D-01 (DELTA ONE) LAUNCH CONTROL FACILITY (LCF) AND D-09 (DELTA NINE) LAUNCH FACILITY (LF). DELTA FLIGHT CONSISTS OF ONE LAUNCH CONTROL FACILITY (LCF) AND THE TEN DISPERSED UNDERGROUND LAUNCH FACILITIES (LFs) WHICH IT CONTROLS. LOCATED JUST NORTH OF BADLANDS NATIONAL PARK, SOUTH DAKOTA, DELTA FLIGHT IS PART OF THE 66TH STRATEGIC MISSILE SQUADRON, 44TH STRATEGIC MISSILE WING OF ELLSWORTH AIR FORCE BASE. THE ENTIRE MINUTEMAN II FORCE WAS TAKEN OFF ALERT ON 28 SEPTEMBER 1991. THE U. S. AIR FORCE IS IN THE PROCESS OF DEACTIVATING ALL MINUTEMAN II LAUNCH FACILITIES WITHIN THE UNITED STATES.

THE MINUTEMAN II DOCUMENTATION WAS UNDERTAKEN BY COOPERATIVE AGREEMENT BETWEEN THE NATIONAL PARK SERVICE, ROCKY MOUNTAIN REGIONAL OFFICE AND TEXAS TECH UNIVERSITY, COLLEGE OF ARCHITECTURE. THE PROJECT WAS DIRECTED BY GREGORY D KENDRICK, CHIEF, BRANCH OF HISTORY, AND THE DRAWINGS WERE PRODUCED BY PROJECT SUPERVISORY ARCHITECT, PROFESSOR JOHN P. WHITE, TEXAS TECH UNIVERSITY. GRADUATE ARCHITECTURAL PRESERVATION STUDENTS INCLUDED SHARON FLEMING, GARY SCOTT DUNLAP, GREGORY SCOTT MACIK, RODERICK JOSEPH REEVES AND GARY RAYMOND STEPHENS. ROBERT E. LYON PREPARED THE PHOTOGRAPHS, AND MICHAEL S. BINDER WROTE THE HISTORICAL OVERVIEW. FUNDING FOR THE PROJECT WAS PROVIDED BY THE UNITED STATES DEPARTMENT OF DEFENSE, LEGACY RESOURCE MANAGEMENT PROGRAM.



SITE PLAN-LAUNCH CONTROL FACILITY (LCF) D-01

FEET 1"=40'

METERS 1:480

DELINEATED BY: GREGORY S. MACIK

ROCKY MOUNTAIN REGIONAL OFFICE; DENVER

ELLSWORTH AIR FORCE BASE, DELTA FLIGHT (MINUTEMAN II ICBM)

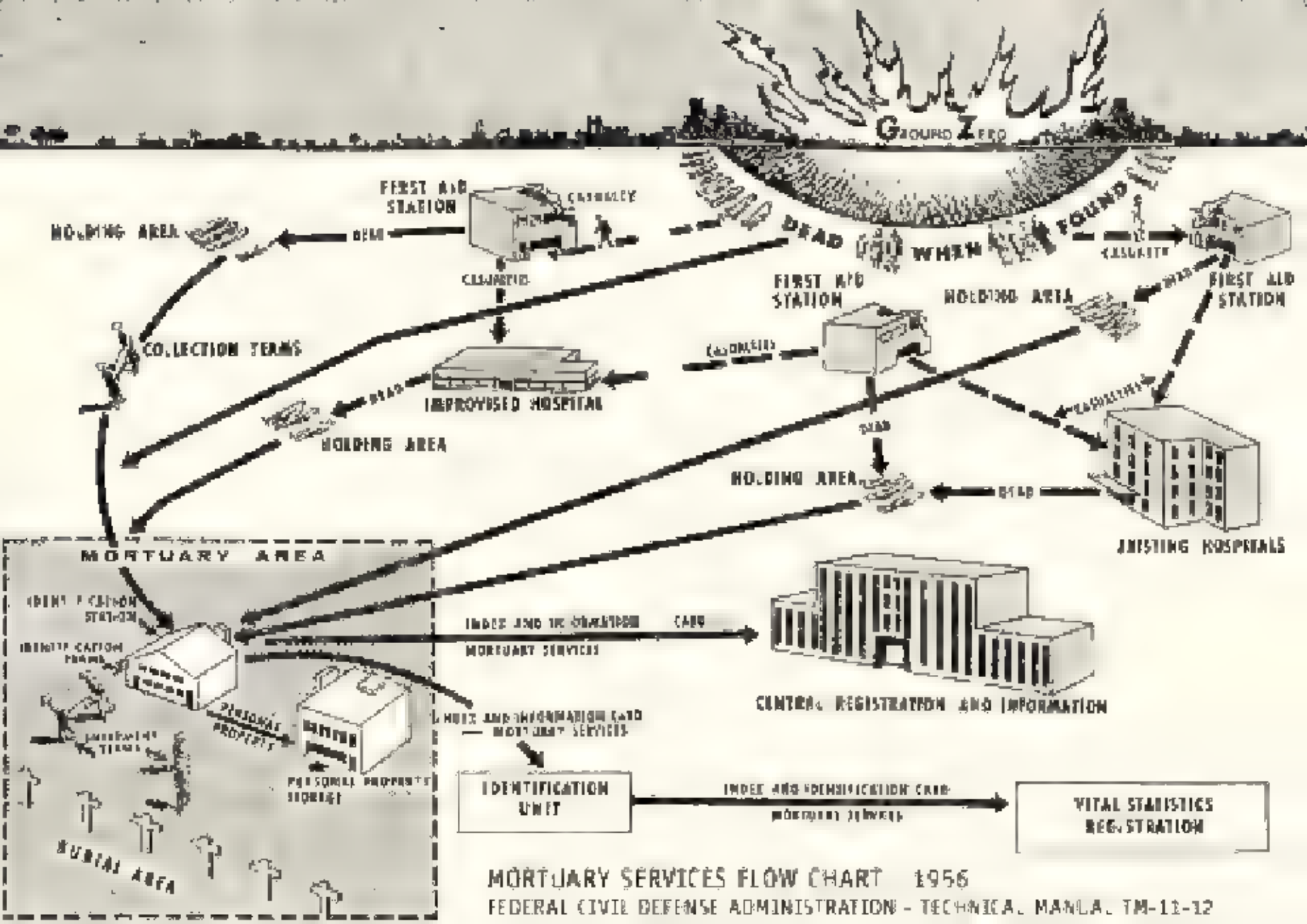
INTERIOR VICINITY

JACKSON COUNTY

SOUTH DAKOTA

SHEET 1 of 4

HISTORIC AMERICAN ENGINEERING RECORD SD-50



MORTUARY SERVICES FLOW CHART 1956

FEDERAL CIVIL DEFENSE ADMINISTRATION - TECHNICAL MANUAL TM-11-12

SAFETY NOTIFICATION CARD—NO POSTAGE REQUIRED

DIRECTIONS.—Fill in this card and mail it immediately after evacuation or attack to any person who might be concerned about your safety. Cards may be obtained free at Civil Defense registration points and Post Offices.

I AM
WE ARE SAFE AND CAN BE REACHED AT THIS ADDRESS UNTIL FURTHER NOTICE

_____

(IF UNABLE TO GIVE DEFINITE MAIL ADDRESS SHOW "GENERAL DELIVERY")

_____ _____

(POST OFFICE) (STATE)

MEMBERS OF FAMILY INCLUDED IN THIS NOTIFICATION (IF NOT INDIVIDUAL SIGNER ONLY)

_____ _____

_____ _____

_____ _____

DATE _____ SIGNATURE _____

POD Form 810 (Feb. 1959)

c60—16—74872-1 GPO

PLAZA 1-9991
PLAZA 1-2809

CANAL 1-2446

BOMB SHELTERS, INC.

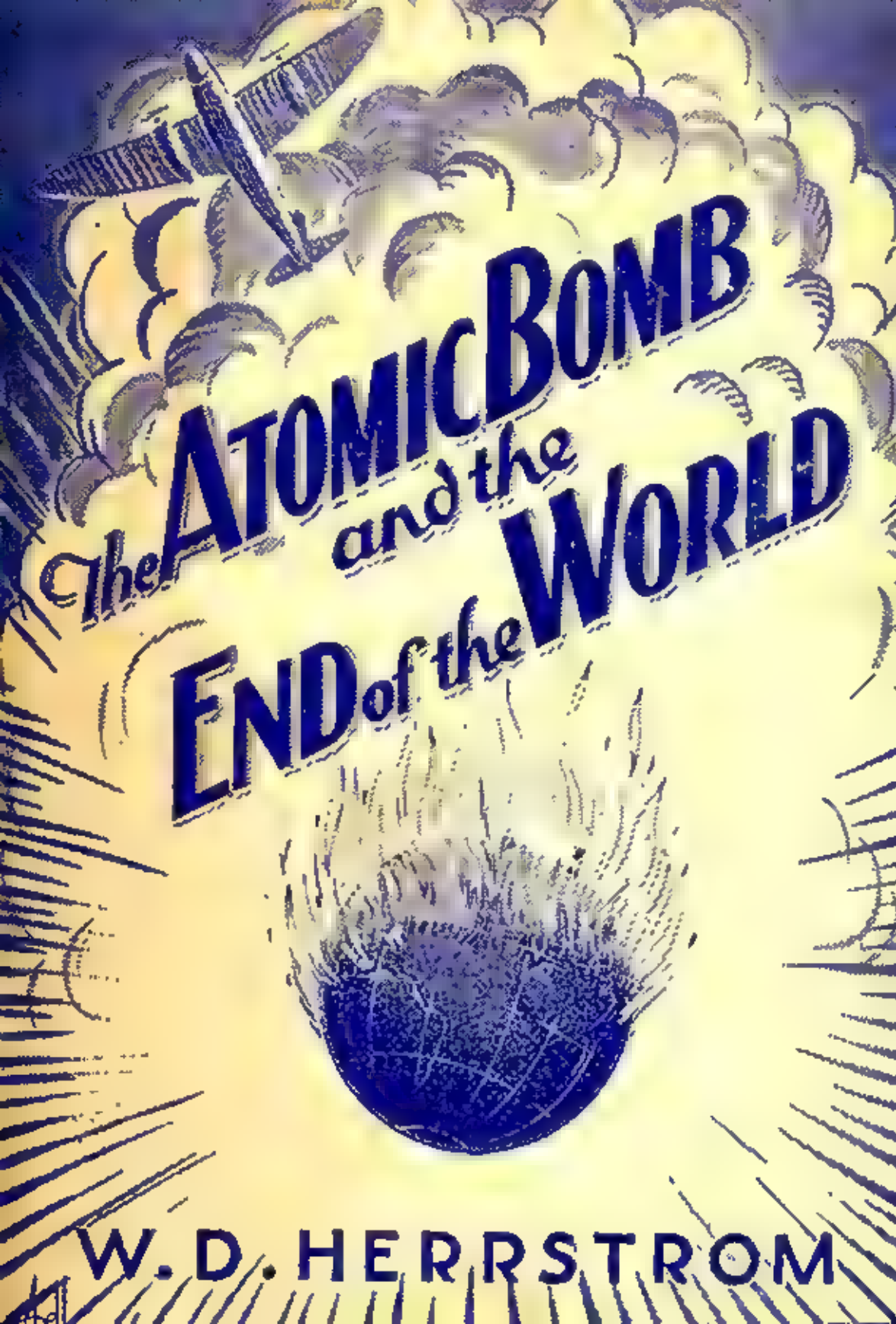
"It Will Save Your Life"

PAUL S. INDIANER
SECY.-TREAS.

1475 N. E. 131ST STREET
NORTH MIAMI, FLORIDA

Photo Copyright © Fanta
AIRLINERS.NET

RESCUE


The ATOMIC BOMB and the END of the WORLD
W. D. HERRSTROM

RECYCLE PROCESS PLANT
NUEN REACTOR
POWER GENERATION PLANT
GREETINGS FROM
THE ATOMIC CITY
OAK RIDGE TENN.
AMERICAN MUSEUM OF ATOMIC ENERGY

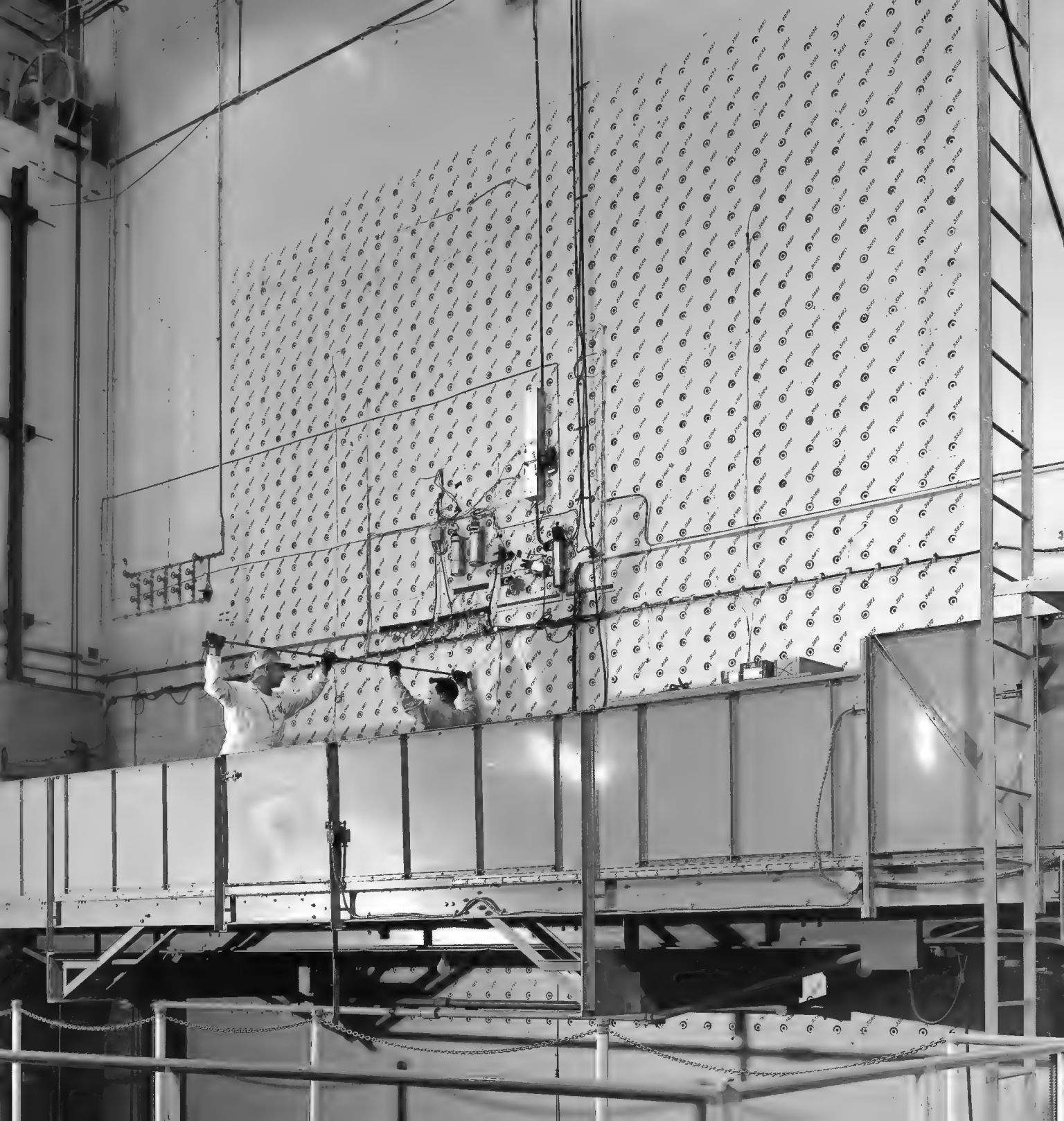
can we
ATOMIZE the ARCTIC?

LOOSE TALK—

a chain reaction

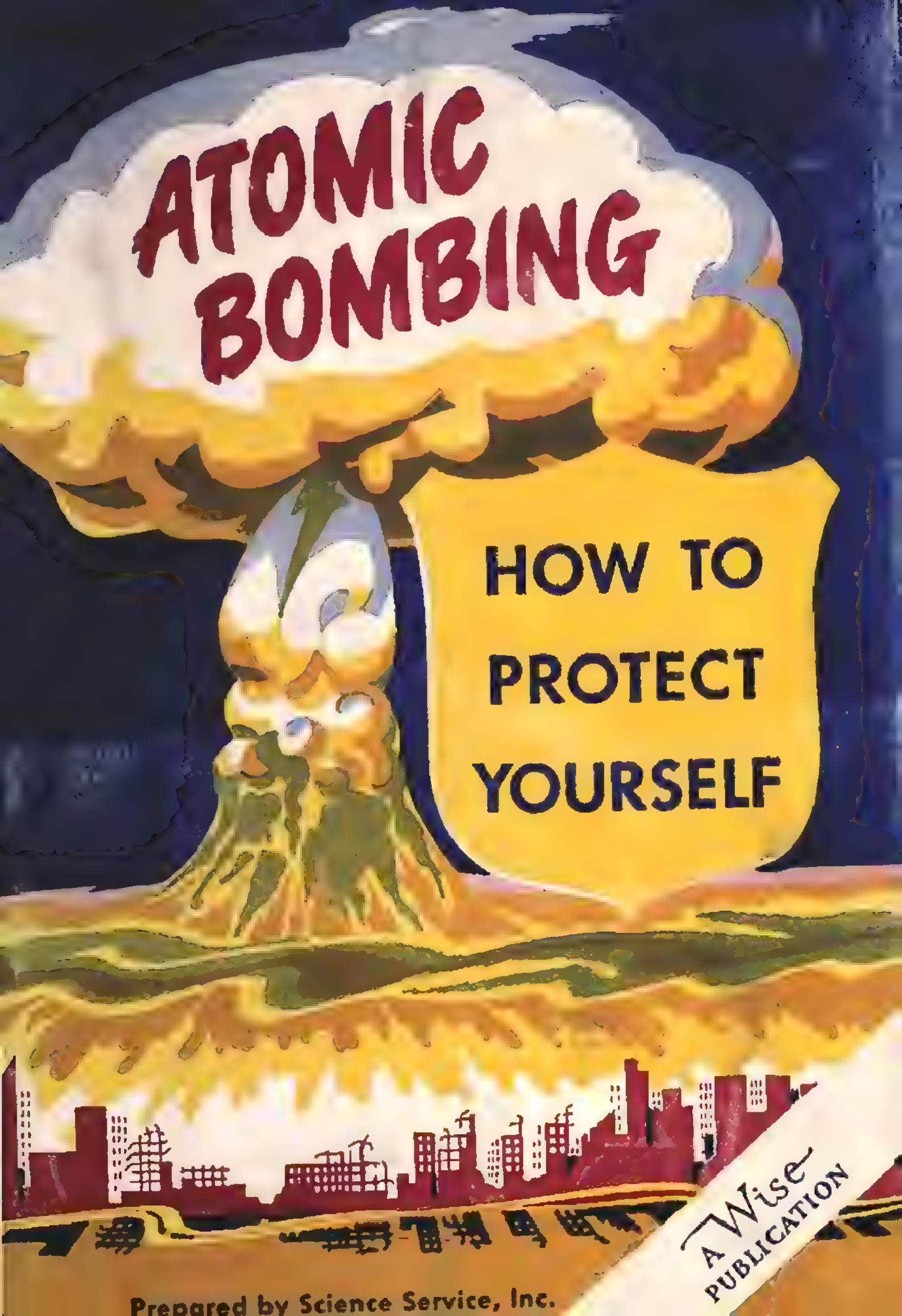
for ESPIONAGE

-SIOUX-



ATOMIC BOMBING

HOW TO PROTECT YOURSELF



Prepared by Science Service, Inc.

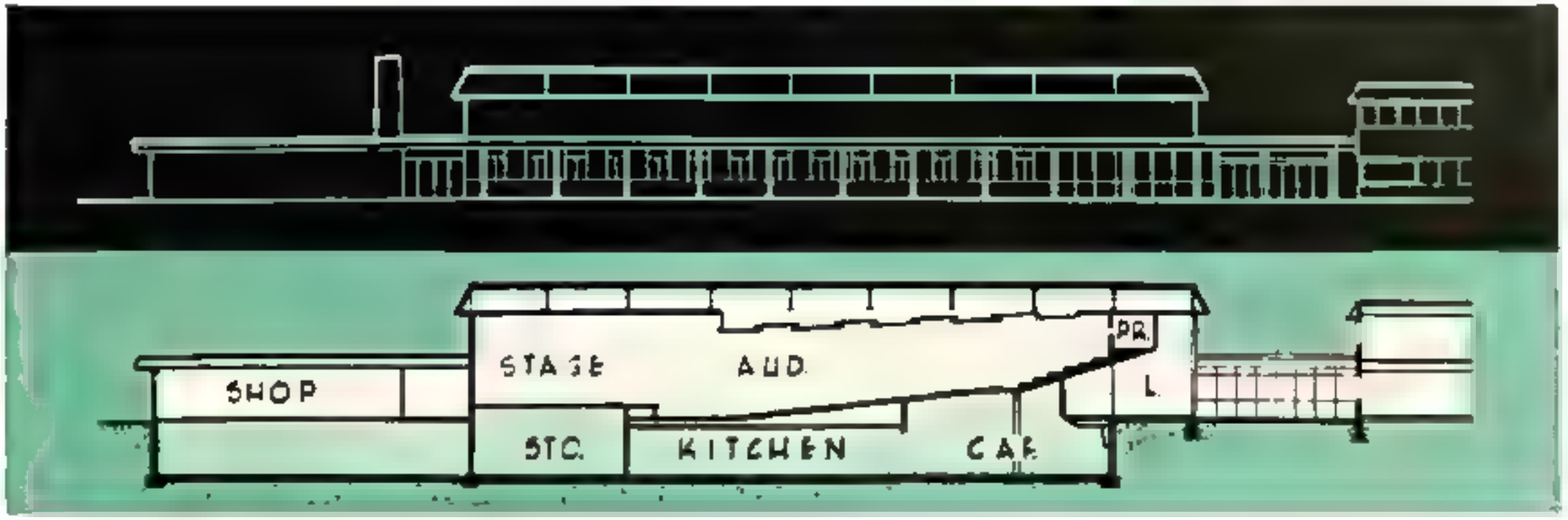
A Wise Publication

AUTOMATIC METAL BOMB RELEASE • ALL METAL BOMB

Atom Bomber

PRACTICE BOMBING,
IMPROVE YOUR SCORE.
BE THE ACE OF...
YOUR OWN AIR CORPS.

COLORFUL TARGET BOX



East Elevation

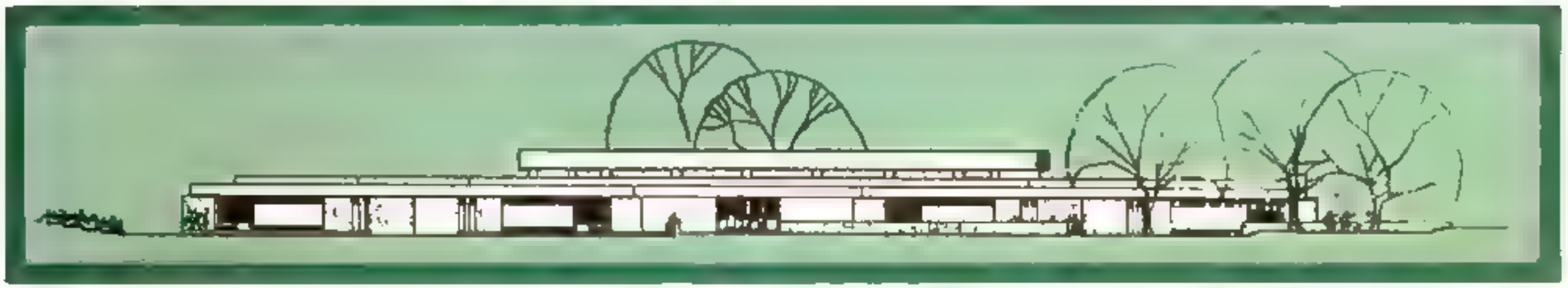
Longitudinal Section

South Elevation

Cross Section

TR 27 - January 1965

NEW BUILDINGS WITH FALLOUT PROTECTION



Department of Defense · Office of Civil Defense

"AN EFFECTIVE CIVIL DEFENSE PROGRAM is an important element of our total defense effort.
It aims at the achievement of a nationwide fallout shelter system."

President of the United States

"Civil Defense is an integral and essential part of our overall defense posture. I believe it is clear from my discussions of the Strategic Retaliatory and Continental Air and Missile Defense Forces that a well planned and executed nation-wide civil defense program centered around fallout shelters could contribute much more, dollar for dollar, to the savings of lives in the event of a nuclear attack upon the United States than any further increases in either of those two programs."

ROBERT S. MCNAMARA,
Secretary of Defense.

NORTH AMERICAN
B-70
AURORA
ALL PLASTIC ASSEMBLY KIT
WORLD'S LARGEST BOMBER
U.S. AIR FORCE
14005

OPERATING FEATURES
LAUNCHING PLATFORM ELEVATES
INCLUDES BOOSTER ROCKET

F-108 RAPIER

WITH LAUNCHING PLATFORM

ITC MODEL CRAFT
HOBBY DIVISION OF IDEAL TOY CORPORATION

DOUGLAS X-3 SUPERSONIC STILETTO

BY PAUL LINDBERG

TRADE MARK REG.
the LINDBERG line
ESTABLISHED SINCE 1933

33 PARTS

AN AUTHENTIC PLASTIC CONSTRUCTION AIRPLANE KIT WITH TWIN JET ENGINES

YOUR FAMILY SURVIVAL PLAN

PA—578

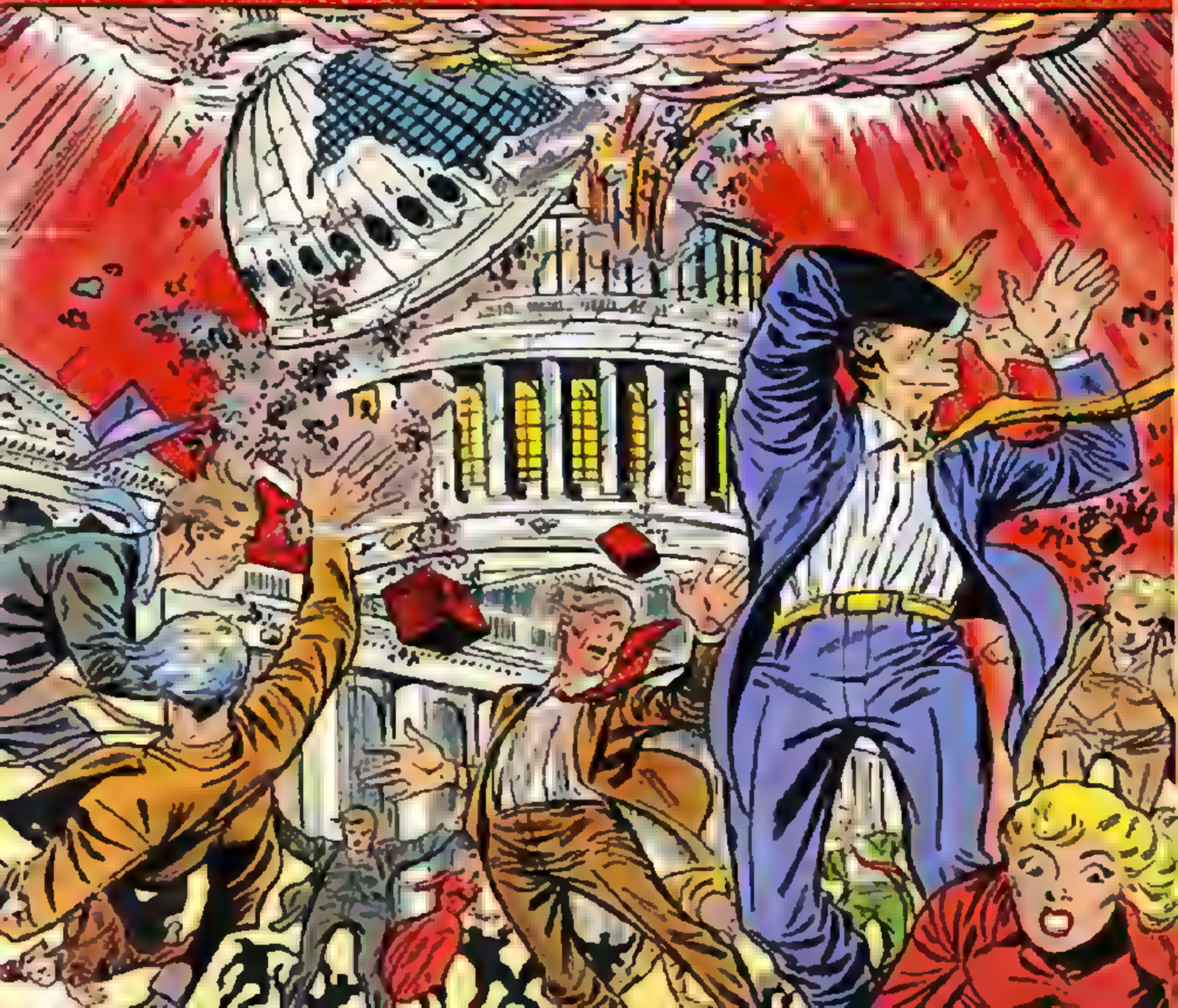
Federal Extension Service, U S. Department of Agriculture in cooperation with the Office of Civil Defense, Department of Defense.

WORLD WAR II

MARCH 10¢

ACE

The War that Will Never Happen
If America Remains Strong and Alert



WHAT ABOUT

YOU and CIVIL DEFENSE?

WHY YOU NEED CD

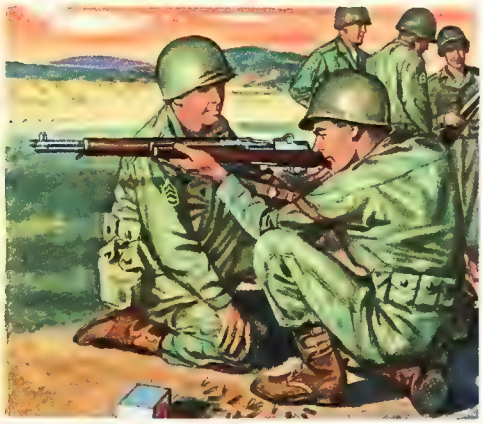
WHAT YOU CAN DO NOW IN CD

FEDERAL CIVIL DEFENSE ADMINISTRATION

The Inside Story ON YOUR NEW ARMY

. . . the story of what the men of your Army do, of how they live. Their jobs are important . . . their skills many . . . their lives productive and interesting.

AFTER HOURS—Like you and the fellow next door, the soldier has time for recreation and relaxation. For example, these members of the First Infantry Division—now stationed in Germany to help guard the peace—have time after hours for taking part in sports, seeing the sights and visiting places of historical interest.



EXECUTIVE AT WORK! As in other businesses, Army men today have jobs of real responsibility — like this sergeant of the Eighth Infantry Division who is instructing in marksmanship. Today's non-commissioned and commissioned officers must have leadership ability, specialized knowledge, human understanding of men.

A BETTER LIFE for you tomorrow. A more efficient and economical Army today! These are the results of research work which modern soldiers—like these men of the Second Infantry Division—are doing. The work varies from studying the effects of intense cold on equipment to devising new communication techniques.

3300 VEHICLES of all sizes, shapes and descriptions — from small jeeps to tanks like these of the Second Armored Division—are used by a streamlined Armored Division. All must be kept at peak operating condition. That's why so many men benefit from the Army's technical school training—the finest in the world!

MANEUVERS — like those of the 82nd Airborne Division above—are vitally important in the life of today's soldier. Here all of the knowledge gained in technical schools and classrooms is put to practical use. Here new methods and procedures are evolved . . . leadership discovered . . . teamwork developed!

CHOW TIME! Today's soldier gets the best food in the world — the finest meat and vegetables grown! And your Regular Army keeps diets and menus varied and interesting. All Army men are well-fed no matter where they may be . . . even when on field maneuvers like these men of the Third Infantry Division.

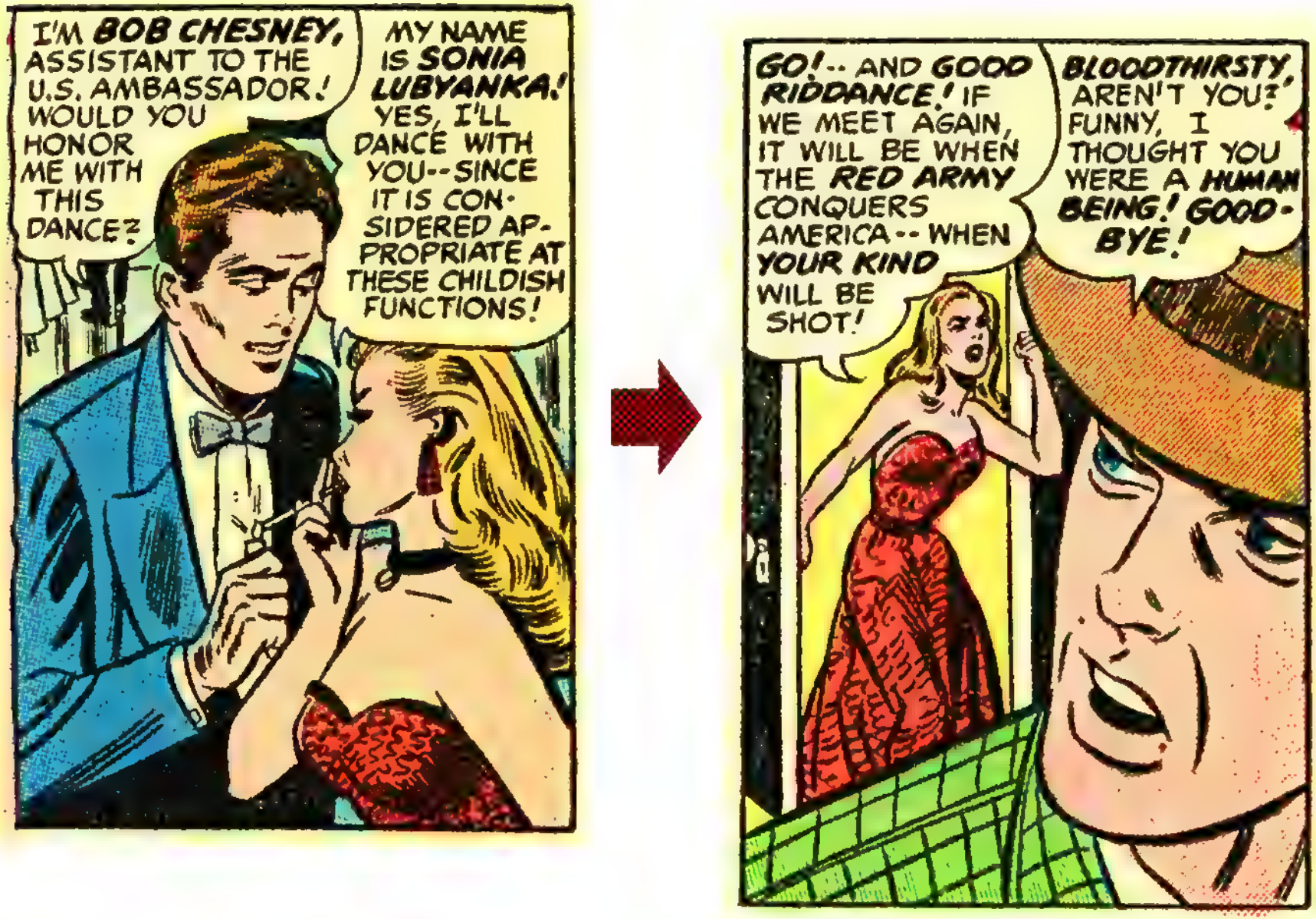
DEMOCRACY AT WORK! Your Army helped win the peace . . . today its members are working to protect it. Wherever they are — in Germany, Korea or Japan—they spread the American way of life. These members of the First Cavalry Division, for instance, are your "on-the-spot" ambassadors of good will in Japan.

PEACE IS AMERICA'S MOST IMPORTANT BUSINESS

THE NEW ARMY AND AIR FORCE OFFER...

★ WIDEST CHOICE OF CAREER JOBS
★ BEST OPPORTUNITY FOR ADVANCEMENT
★ UNUSUAL RETIREMENT BENEFITS

U.S. ARMY and U.S. AIR FORCE
RECRUITING SERVICE


I'M BOB CHESNEY, ASSISTANT TO THE U.S. AMBASSADOR! WOULD YOU HONOR ME WITH THIS DANCE?
MY NAME IS SONIA LUBYANKA! YES, I'LL DANCE WITH YOU--SINCE IT IS CONSIDERED APPROPRIATE AT THESE CHILDISH FUNCTIONS!
GO!-- AND GOOD RIDDANCE! IF WE MEET AGAIN, IT WILL BE WHEN THE RED ARMY CONQUERS AMERICA-- WHEN YOUR KIND WILL BE SHOT!
BLOODTHIRSTY, AREN'T YOU? FUNNY, I THOUGHT YOU WERE A HUMAN BEING! GOOD-BYE!

LIFE

MATT RIDGWAY'S
ARRIVAL TO ASSUME
SUPREME COMMAND

APRIL 30, 1951
CIRCULATION OVER

Has Russia the Atom Bomb?

SOVIET ATOM BOMB might have been tested somewhere in Siberia—perhaps in the crater of the great 1908 meteorite. Foreign Minister Molotoff says Russia knows the secret of the atom bomb.

BY HANSON W. BALDWIN
Military Analyst, New York Times; Graduate, U. S. Naval Academy

DOES Russia have the atom bomb?

Soviet Foreign Minister Molotoff and his mouthpiece Vishinsky have stated that the Russians know the "secret" of the bomb.

They undoubtedly do, but that does not mean that Russia has been able to build a bomb. In my opinion they have not produced an atomic bomb to date of writing—but they will. Intelligence information—unofficial and inconclusive but indicative—says "no bomb yet."

Our own experience in manu- [*Continued on page* 62]

Saunders

AUGUST No.32 10¢

Love Secrets

See-

I FELL FOR A COMMIE

PERHAPS THE WAR EMBITTERED TOM LIKE THIS...I MUST BE PATIENT! ONE DAY HE WILL COME TO HIS SENSES...HE MUST!
Young Americans Club
YAC

Russian NUCLEAR POWERED BOMBER

AUGUST 1953 35 CENTS

POPULAR MECHANICS MAGAZINE

SO YOU CAN UNDERSTAND IT

REGD TRADE MARK, GREAT BRITAIN, NO ... REG U.S. PAT OFF.

In This Issue

Rear Admiral Charles B. Momsen writes on

SUBMARINE WARFARE

HOW TO AIR CONDITION YOUR HOME

Hottest Truck on the Road —the TURBO-JET

What Owners Say

ABOUT THE PACKARD

4

Giant Model

BOMBERS

with NEW REVEL *ving* SWIVEL BASE

Revolves to any position

SCALED FROM OFFICIAL PRINTS

All Plastic, Quick, easy to build, no cutting, no sanding

STRATEGIC AIR COMMAND BOMBERS

B-29 Superfortress — *B-36 Convair* — *B-47 Stratojet* — *B-52 Stratofortress*

Revell

Authentic Kits

LIFE

JET PILOT

DECEMBER 9, 1946 15 CENTS
YEARLY SUBSCRIPTION $5.50

give the bomb from eight to 1,000 times the power of the A-bomb.

That an H-bomb could be built was foreseen by physicists even before the discovery of uranium fission. Atomic reactions of the fusion type supply the energy of the sun and of stars. Their duplication on earth awaited only a means of attaining comparable temperature and pressure, which the A-bomb now provides, to start the reaction.

Peaceful uses of the superbomb's reaction appear impossible, because of the cataclysm required to bring it about. Unlike uranium fission with its promise of untold power for constructive ends, hydrogen fusion seems adaptable to military purposes alone, in an instrument of destruction beyond all limits known before.

Figures Show What An H-Bomb Can Do

The scale of a hydrogen bomb's devastation can be readily calculated. It may surprise some laymen to learn that it takes an enormous increase in a bomb's power to extend its destructive range only a little. By a simple "cube-root" formula commonly employed, multiplying a bomb's power eight times will just double its radius of destruction. A multiplication in power of 1,000 times will increase the destructive radius 10-fold. Observations of actual explosions indicate these figures are ultraconservative estimates of destructive range.

An H-bomb eight to 1,000 times as powerful as an A-bomb would therefore produce the same effects at a distance *at least* two to 10 times as great, respectively. From the known performance of the A-bomb, these can be visualized as follows:

Explosion of an H-bomb of eight times the A-bomb's power would create a ball of fire two-thirds of a mile in diameter—a miniature star in mid-air, far above the earth for maximum effectiveness. From its center would radiate explosive blast, searing heat, and deadly radioactive rays.

Up to a radius of one mile from the point on earth beneath the explosion, nearly all persons would perish. Many would be killed three times over, by blast, heat, and radioactivity. Nothing but seared rubble would remain of most buildings. Any left standing would be gutted by fire.

Between one- and two-mile radii, casualties would be enormous from flying, falling, and burning debris and from flash burns caused by the bomb's radiant heat. Steel buildings would be twisted and brick buildings shattered by blast.

Beyond the two-mile radius most casualties would be nonfatal flash burns. Mild ones might be inflicted more than four miles away.

Scaling up the power of the H-bomb to 1,000 times that of the A-bomb would extend the central zone of total destruction to a circle of five-mile radius. Heavy casualties and damage would occur up to ten-mile radius and injuries would extend far beyond. From the A-bomb to a bomb of such fantastic power, capable of obliterating an area of at least 75 square miles and laying waste a zone four times as great, would be a step as far as from the "blockbuster" to the atomic bomb itself.

What H-Bombs Mean to Military Strategy

Obviously a city as large as New York—which Lt. Gen. Leslie R. Groves has estimated it would take seven A-bombs to destroy—could be wiped out instantly by a single medium-sized hydrogen bomb. With an H-bomb in enemy hands, this and some of the other largest American cities could hardly fail to be tempting targets. In other lands, comparable targets are scarcer. Russia, largest country on earth, has only two really large cities: Moscow and Leningrad.

Except for an enemy city or two, then, and perhaps a naval fleet widely dispersed at sea, what target can possibly be imagined for made-in-America H-bombs, where an A-bomb would not accomplish as much?

If bomb hits were always bull's-eyes, the answer might well be: none. But the best bombardier with the best bombsight cannot guarantee to hit a target—say, an enemy's atom-bomb plant—that may be vigorously defended, or masked by unfavorable weather. And far wider misses are likely if atomic bombs are to be delivered by long-range pilotless missiles.

Ability to turn a "near-miss" into an effective hit therefore sums up the outstanding advantage of the H-bomb over the A-bomb as a military weapon.

COMPARATIVE EFFECT OF A-BOMB AND H-BOMB

TYPE OF BOMB	ZONE OF TOTAL DESTRUCTION (Nearly all persons killed, buildings razed)	ZONE OF HEAVY DAMAGE (Casualties high, buildings severely damaged)
A-BOMB		
RADIUS	½ MILE	1 MILE
AREA	¾ SQ. MILE	3 SQ. MILES
H-BOMB 8 Times as Powerful		
RADIUS	1 MILE	2 MILES
AREA	3 SQ. MILES	12 SQ. MILES
H-BOMB 1,000 Times as Powerful		
RADIUS	5 MILES	10 MILES
AREA	75 SQ. MILES (approx.)	300 SQ. MILES (approx.)

Unlimited Size Explains the H-Bomb's Power

What accounts for the H-bomb's enormous capacity for destruction?

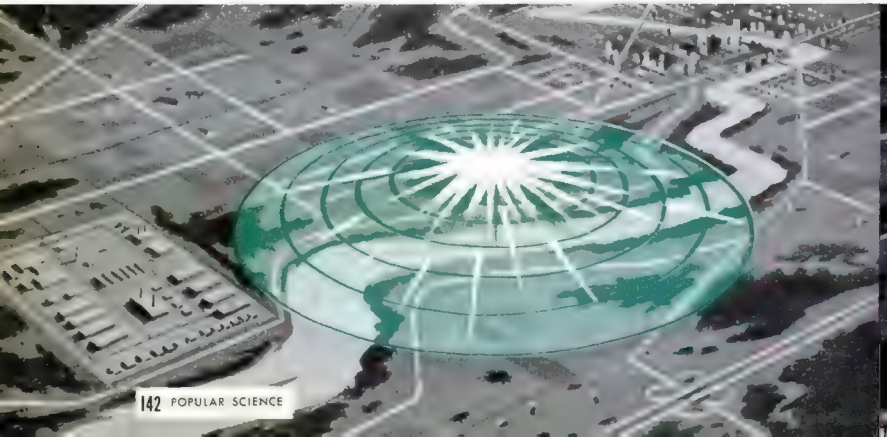
Some of the different atomic-fusion reactions that it could employ give several times the power that uranium does, weight for weight of ingredients. But that is only a small part of the story.

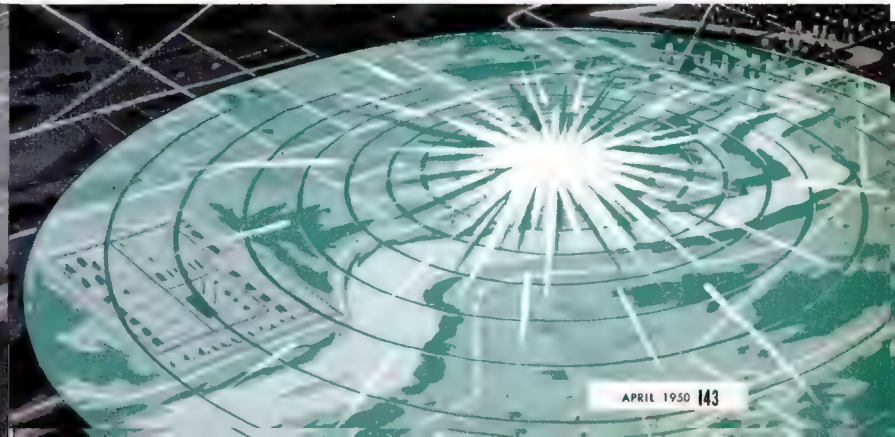
Unlimited size is the real secret of the H-bomb's staggering power. Size of ➧

Turning Near-Miss into Hit Is Prime Military Advantage of the H-Bomb

A-bomb, exploded at most effective height of 2,000 feet, causes total destruction up to half-mile radius. Heavy damage extends to one-mile radius, indicated by colored area below. With enemy atomic plant as imaginary target, near-miss would leave plant (left) virtually intact.

H-bomb turns near-miss into hit. Minimum estimate of power, eight times A-bomb's, makes range of total destruction one mile. Area of heavy damage, in color, has two-mile radius and includes target. H-bomb 64 times A-bomb's power totally destroys this area and target.



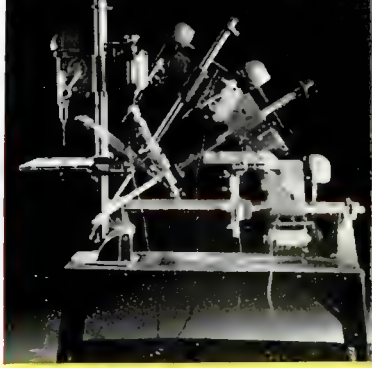


POPULAR SCIENCE

Mar. 1950

25¢

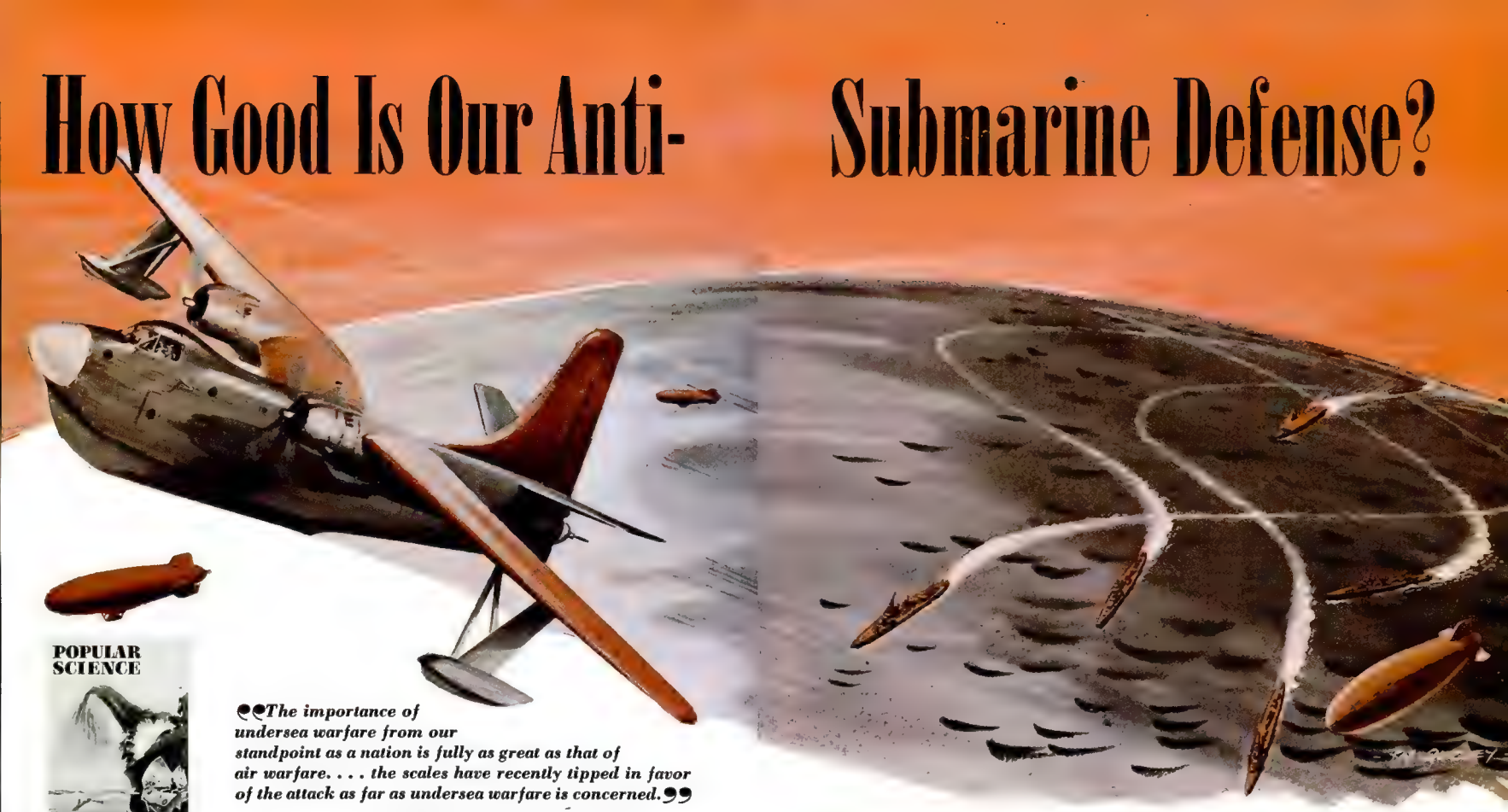
Monthly



Motorized Tool Kit—page 16

How Good Is Our Anti-Sub Defense?

How Good Is Our Anti-Submarine Defense?



Cover by Ray Quigley

"The importance of undersea warfare from our standpoint as a nation is fully as great as that of air warfare. . . . the scales have recently tipped in favor of the attack as far as undersea warfare is concerned."

—**VANNEVAR BUSH,** in *Modern Arms and Free Men*

A radar-nosed, long-range Martin patrol bomber, left, meets a Hunter-Killer Force at sea.

By Phil Gustafson
Drawings by Ray Quigley

YOU are standing on the cramped bridge of a light carrier. Crowded around you are the Skipper, the watch officers, talkers, air officers, the Admiral commanding this Hunter-Killer Force, and some of his staff.

On the flight deck, a couple of narrow ladders below you, plane pushers are respotting aircraft at once familiar and strange: torpedo-bombers like the faithful old Grummans, but looking like bullfrogs with grossly swollen housings for search gear.

Down another ladder, men in the constant twilight of the information center watch their scopes and plot their dope. Topside, it is a bright tropical day, but your eyes are heavy from the strain of round-the-clock operations. In ASW—Anti-Submarine Warfare—the hounds share the nerve-wracking jumpiness of the fox.

Off the beams and the bows, the destroyers weave their wakes. Overhead, planes drone across, flags whip in the wind, the radar rotates monotonously. And under you, somewhere in all that water, is an "enemy" submarine. A modern submarine, equipped with the batteries to shove it along under water about as fast as you can go on the surface. With a snorkel to let it breathe for recharging without surfacing.

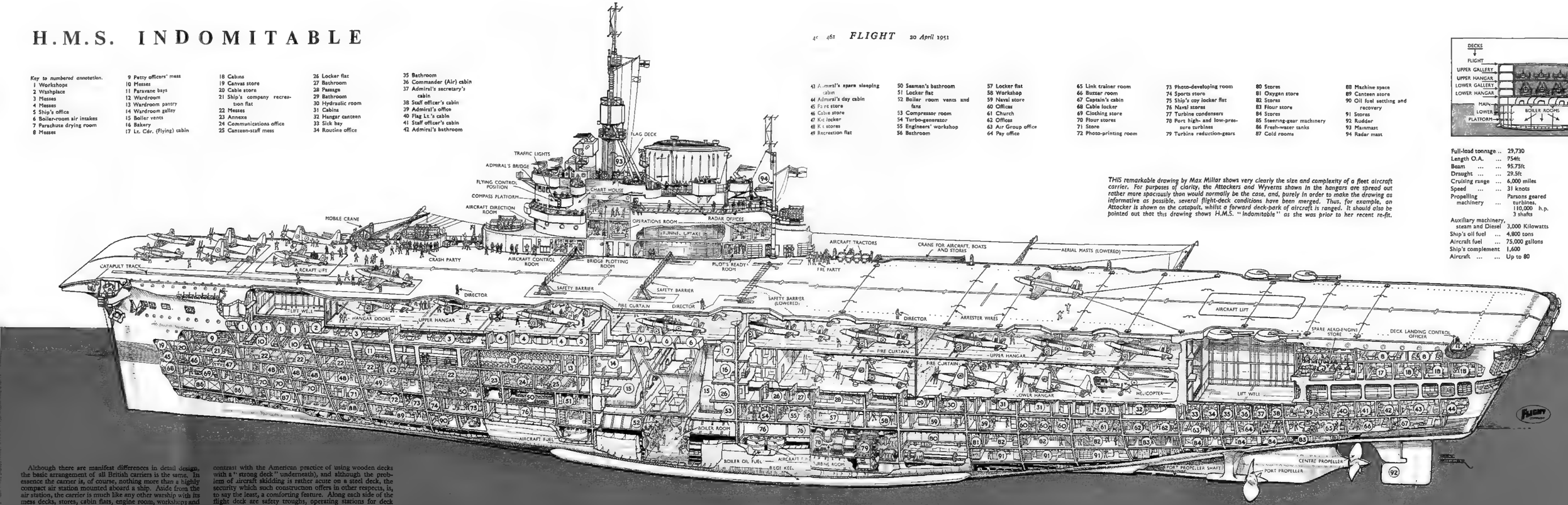
At your elbow, a squawk box begins to blat. One of the search planes, patterning the endless ocean, has caught a scent. A blimp swoops over to investigate with surprising agility: 70 knots is very fast a few feet off the water. Then comes the call for a killer, and a destroyer closes in like a cowboy. Up comes the sub, a sleek steel shark, and you realize how near it was to getting your carrier, nerve center and home base of the whole H-K force.

That's the way it is in the maneuvers—sometimes. The deadly guppy-snork *can* be caught and killed—when weather and water favor the hunter-killers. But find-

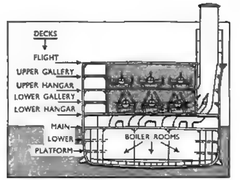
H.M.S. INDOMITABLE

Key to numbered annotation.

1 Workshops
2 Washplace
3 Messes
4 Messes
5 Ship's office
6 Boiler-room air intakes
7 Parachute drying room
8 Messes
9 Petty officers' mess
10 Messes
11 Paravane bays
12 Wardroom
13 Wardroom pantry
14 Wardroom galley
15 Boiler vents
16 Bakery
17 Lt. Cdr. (Flying) cabin
18 Cabins
19 Canvas store
20 Cable store
21 Ship's company recreation flat
22 Messes
23 Annexe
24 Communications office
25 Canteen-staff mess
26 Locker flat
27 Bathroom
28 Passage
29 Bathroom
30 Hydraulic room
31 Cabins
32 Hangar canteen
33 Sick bay
34 Routine office
35 Bathroom
36 Commander (Air) cabin
37 Admiral's secretary's cabin
38 Staff officer's cabin
39 Admiral's office
40 Flag Lt.'s cabin
41 Staff officer's cabin
42 Admiral's bathroom
43 Admiral's spare sleeping cabin
44 Admiral's day cabin
45 Paint store
46 Cabin store
47 Ice locker
48 Ice stores
49 Recreation flat
50 Seaman's bathroom
51 Locker flat
52 Boiler room vents and fans
53 Compressor room
54 Turbo-generator
55 Engineers' workshop
56 Bathroom
57 Locker flat
58 Workshop
59 Naval store
60 Offices
61 Church
62 Offices
63 Air Group office
64 Pay office
65 Link trainer room
66 Buzzer room
67 Captain's cabin
68 Cable locker
69 Clothing store
70 Flour stores
71 Store
72 Photo-printing room
73 Photo-developing room
74 Sports store
75 Ship's coy locker flat
76 Naval stores
77 Turbine condensers
78 Port high- and low-pressure turbines
79 Turbine reduction-gears
80 Stores
81 Oxygen store
82 Stores
83 Flour store
84 Stores
85 Steering-gear machinery
86 Fresh-water tanks
87 Cold rooms
88 Machine space
89 Canteen store
90 Oil fuel settling and recovery
91 Stores
92 Rudder
93 Mainmast
94 Radar mast



THIS remarkable drawing by Max Millar shows very clearly the size and complexity of a fleet aircraft carrier. For purposes of clarity, the Attackers and Wyverns shown in the hangars are spread out rather more spaciously than would normally be the case, and, purely in order to make the drawing as informative as possible, several flight-deck conditions have been merged. Thus, for example, an Attacker is shown on the catapult, whilst a forward deck-park of aircraft is ranged. It should also be pointed out that this drawing shows H.M.S. "Indomitable" as she was prior to her recent re-fit.



Full-load tonnage ..	29,730
Length O.A. ...	754ft
Beam	95.75ft
Draught	29.5ft
Cruising range ...	6,000 miles
Speed	31 knots
Propelling machinery ...	Parsons geared turbines, 110,000 h.p. 3 shafts
Auxiliary machinery, steam and Diesel	3,000 Kilowatts
Ship's oil fuel ...	4,800 tons
Aircraft fuel ...	75,000 gallons
Ship's complement	1,600
Aircraft	Up to 80

Although there are manifest differences in detail design, the basic arrangement of all British carriers is the same. In essence the carrier is, of course, nothing more than a highly compact air station mounted aboard a ship. Aside from the air station, the carrier is much like any other warship with its mess decks, stores, cabin flats, engine room, workshops and so forth. Superposed on all this, however (and to some extent surrounded by it), is the hanger accommodation, with its attendant storerooms and workshops, the whole being topped off with the flight deck. Slightly forward of amidships, and on the starboard side of the vessel, is the "island", a structure housing the operational executive offices of the ship, the funnel, masts, and radio and radar antennae. The flight decks of British fleet carriers are of armour-plate (by contrast with the American practice of using wooden decks with a "strong deck" underneath), and although the problem of aircraft skidding is rather acute on a steel deck, the security which such construction offers in other respects, is, to say the least, a comforting feature. Along each side of the flight deck are safety troughs, operating stations for deck gear, walkways and the A.A. gun sponsons.

At the extreme forward end of the flight deck is the catapult —a hydraulically actuated trolley running along a slot in the deck in order to accelerate an aircraft to flying speed in a distance of something over 100ft. Each light fleet carrier has its catapult on the port side of the flight deck, but the new fleet carriers will be equipped with a pair, one each port and starboard.

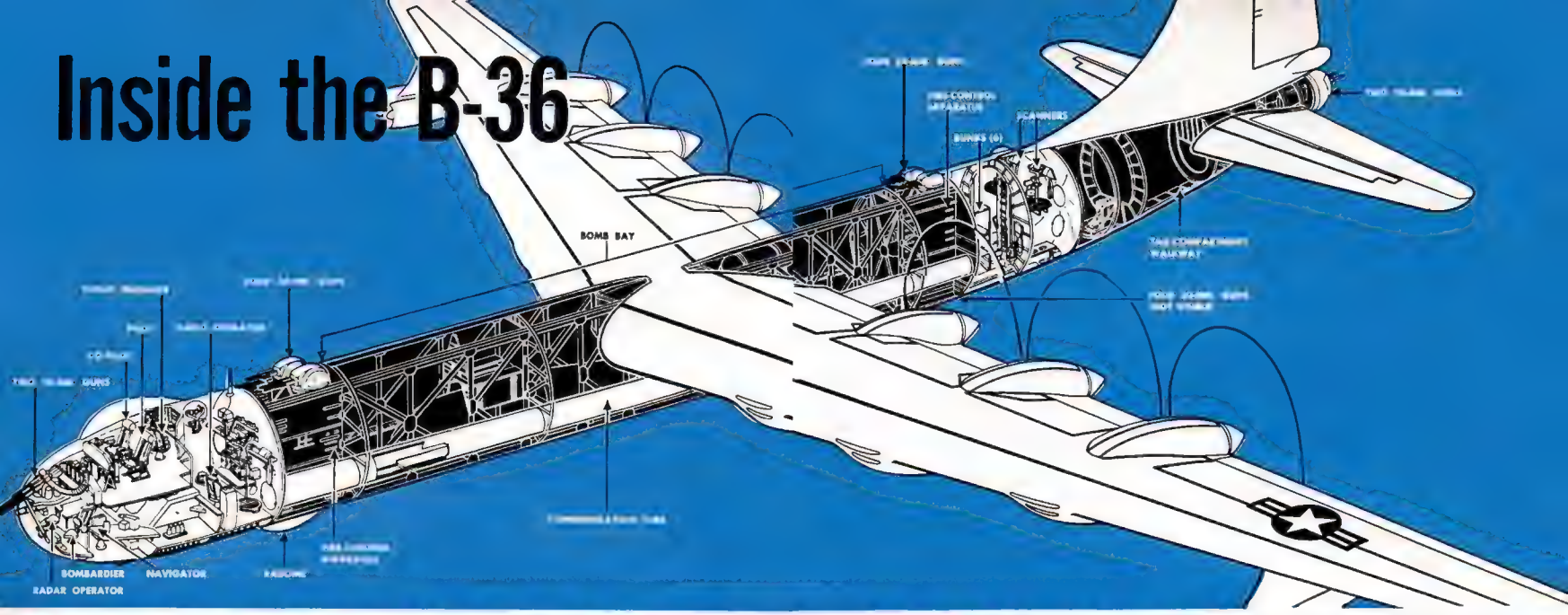
Across the flight deck, abreast the island, are the crash barriers, which are always raised when an aircraft is landing, and rearward of these the after two-fifths of the flight deck is straddled by a number of arrester wires, the number of which varies according to the class of carrier. The arrester wires are specially flexible pre-laid steel ropes, which are rove in pairs at 12 : 1 ratio to single cylinder-units. The hydraulic fluid is a 50/50 mixture of water and glycerine, and displacement of this fluid by movement of the piston is progressively restricted so as to give a constant deceleration rate. Of the ten arrester wires in a light fleet carrier, the first eight have a maximum pull-out of 154ft, whilst the final two have a maximum travel of 128ft. Raising, lowering and re-setting the wires is controlled remotely from a station at the port side of the flight deck abreast the after lift. The wires, incidentally, are normally raised a few inches above the deck, being so lifted by silicon-manganese bow-springs, which are pulled down (to lower the wires) by compressed-air piston/cylinder units.

The crash barriers are essentially similar to the arrester wires, each barrier consisting of a "fence" of steel wires, slung between articulated arms whereby the barriers can be raised and lowered. Like the arrester wires, the barriers can also be pulled out by an aircraft (or anything else, for that matter) running into them, but the maximum pull-out distances are considerably less than apply in the case of the wires. The barriers are remotely controlled from the (port) deck edge midway between them.

The catapult mechanism is a virtual reversal of that used for the arrester gear, in that the catapult trolley is actuated by a cylinder/piston unit through a system of rope reevings to give an 8 : 1 magnification of piston travel. The system is basically pneumatic, the pressure of air admitted to the cylinder being adjusted to give the trolley speed required for the weight of the particular aircraft being launched. A rough rule in this context is 1 lb/sq in air pressure for each 10 lb of aircraft weight. Having launched the aircraft, the trolley is returned by admitting water-glycerine to the cylinder in order to re-compress the air.

(Continued overleaf)

Inside the B-36



THIS CUTAWAY gives you your first over-all view of the interior of the Air Force's B-36 intercontinental bomber. Pressurized areas of the 162-foot fuselage are shown in white. Designed to carry 10,000 pounds of bombs 10,000 miles, the huge plane can carry as much as 84,000 pounds for shorter distances. For protection against enemy interceptor planes, the big Convair bomber mounts sixteen 20-mm. cannon.

By John F. Loosbrock

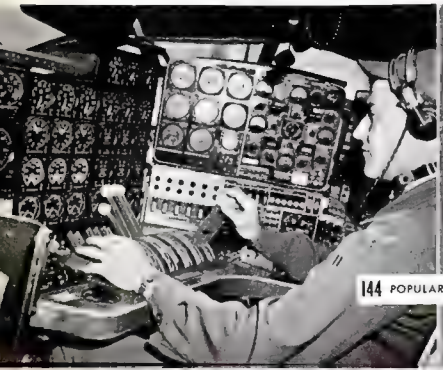
BACKBONE of the U. S. Air Force's Strategic Air Command, the Convair B-36 is the world's biggest bomber. Here, for the first time, a cutaway sketch and photographs are combined to give you an inside look at this sky giant.

Its 13-man crew rides in pressurized comfort, even at altitudes up to 50,000 feet. The plane carries its own subway, an 87-foot airtight communication tube, 30 inches in diameter, that connects the front and rear pressurized crew compartments. The rear one has six bunks, where crewmen sleep during long flights.

In the air, the B-36's skin is sleek, unbroken by protruding gun turrets. These retract during flight and are elevated when the bomber reaches hostile territory.

The big bomber's sixteen 20-mm. cannon are mounted in eight turrets, fired remotely by a GE central fire-control system. And future experiments may replace these guns ➧

FLIGHT ENGINEER on the B-36 keeps an eye on the bewildering array of gauges and controls that harness the six 3,500 hp. engines. On late models, four 5,200-lb. thrust jet engines give added speed.



FORE AND AFT PRESSURIZED SECTIONS are connected by an 87-foot-long pressurized tunnel. Crewmen ride through it by lying on a four-wheeled cart, pulling themselves along a cable. Cart runs on rails.

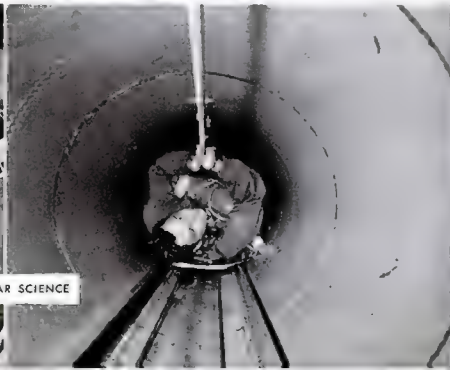
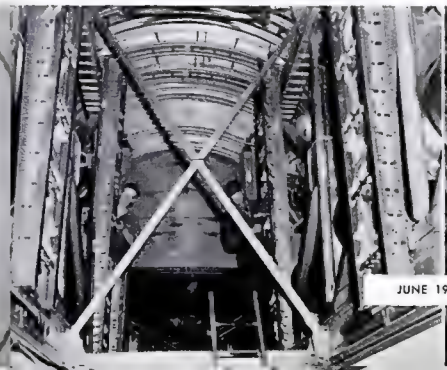
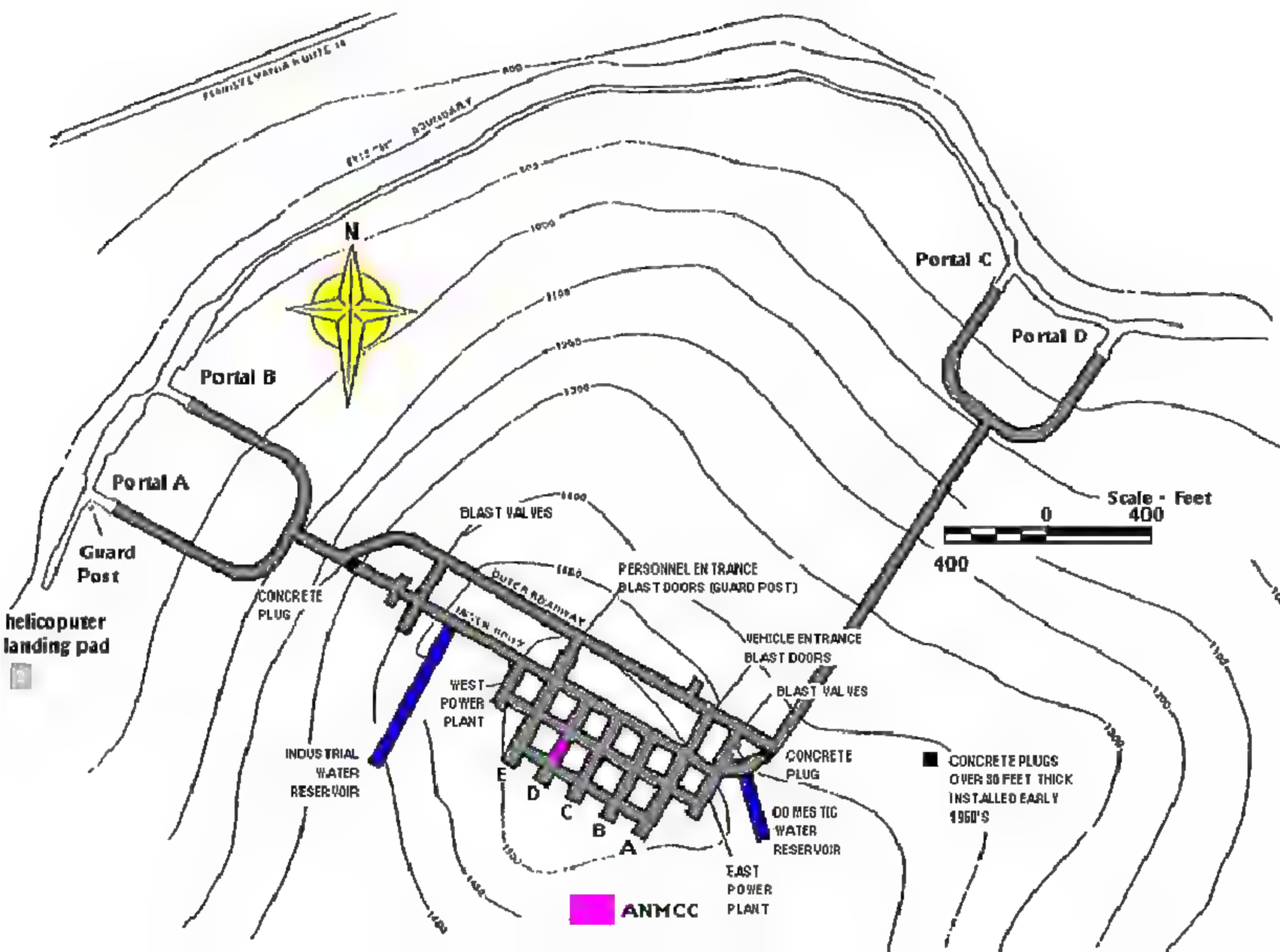


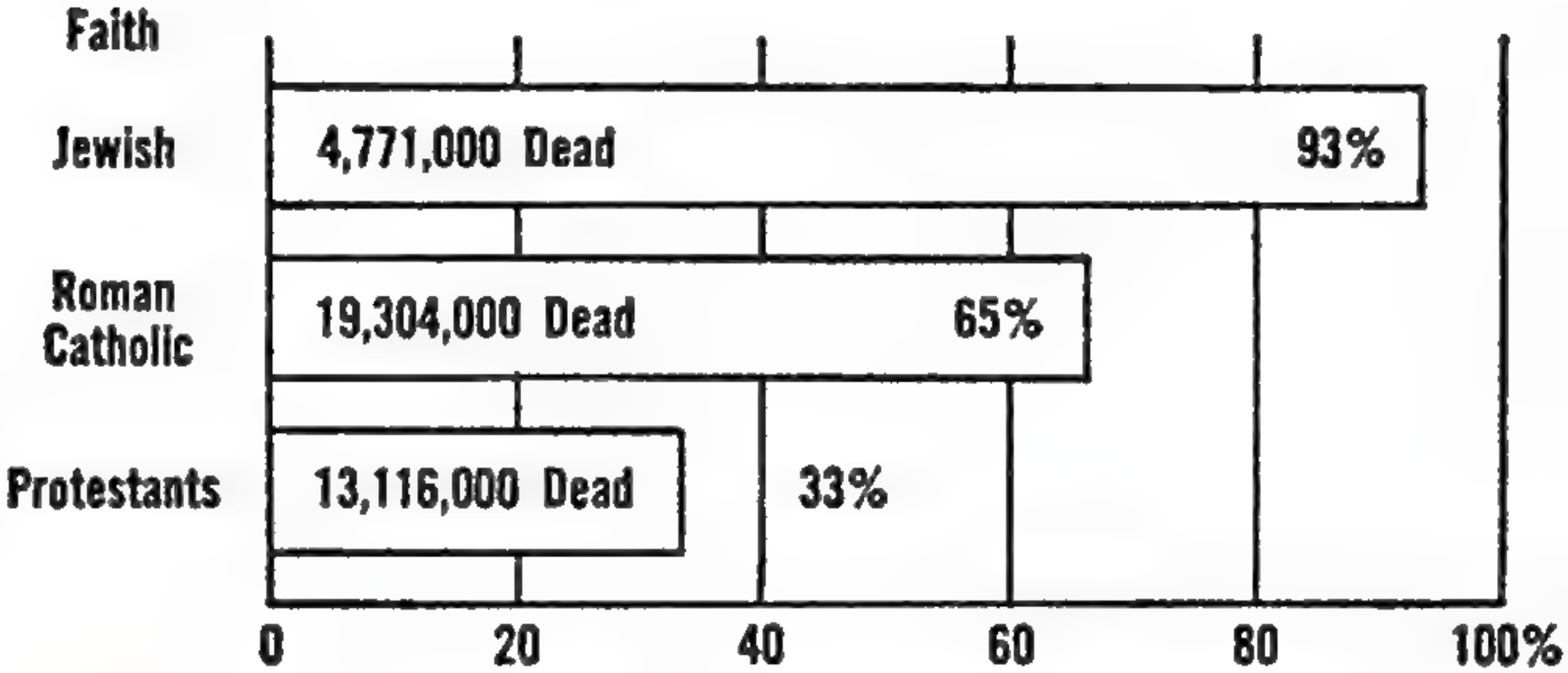
PHOTO SHOWS two airmen working on part of the intricate equipment in one of the bomb bays. Bays have retractable doors that slide up inside fuselage, instead of dropping down, when opened.



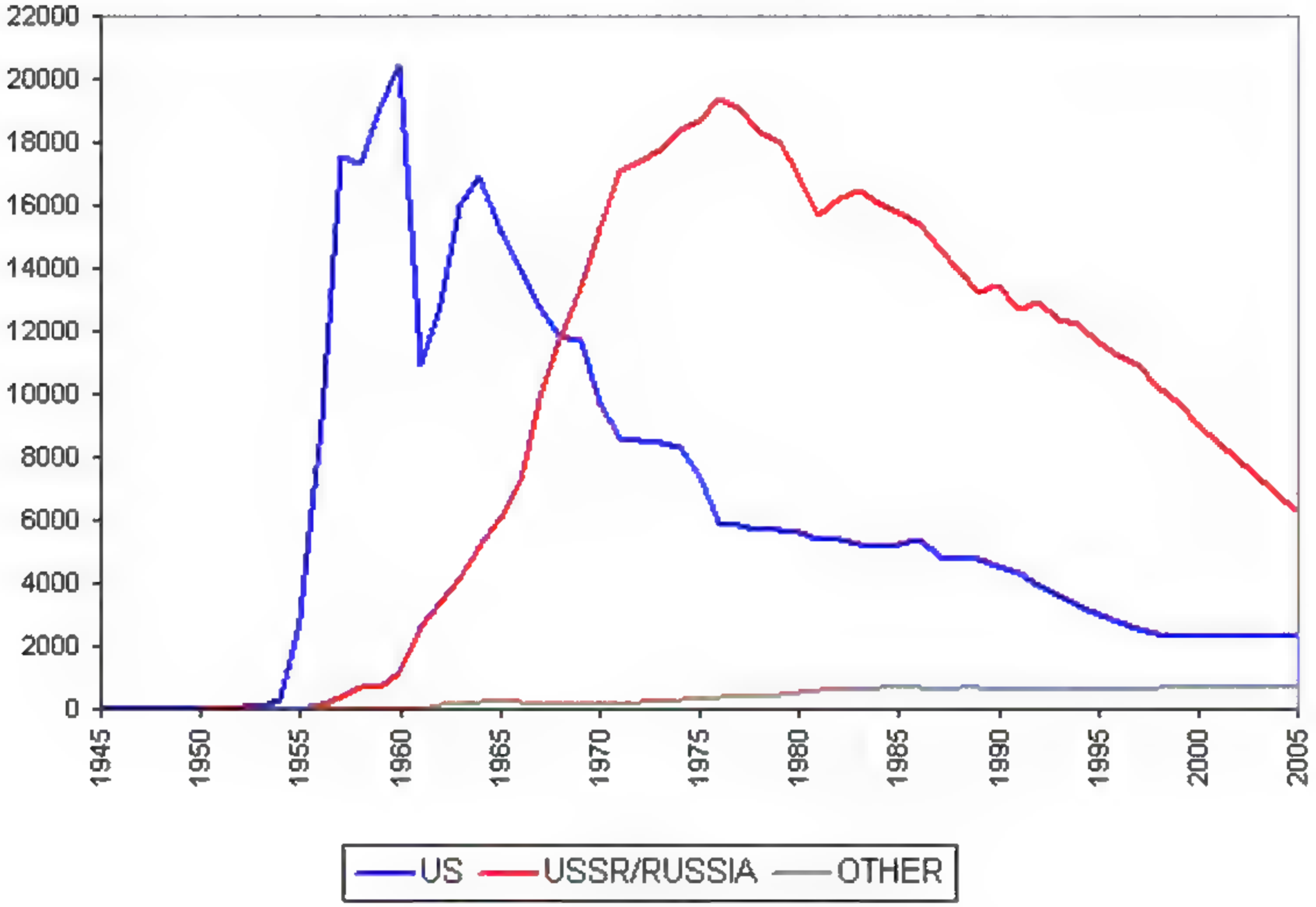
DURING FLIGHT, crew members stand by at their stations in rear section. Scanners, with earphones, watch for trouble that pilot might not see. Off-duty crewmen can nap on the six bunks in compartment.


N
Portal A
Portal B
Portal C
Portal D
Guard Post
helicopter landing pad
CONCRETE PLUG
BLAST VALVES
PERSONNEL ENTRANCE BLAST DOORS (GUARD POST)
VEHICLE ENTRANCE BLAST DOORS
BLAST VALVES
WEST POWER PLANT
INDUSTRIAL WATER RESERVOIR
CONCRETE PLUG
DOMESTIC WATER RESERVOIR
EAST POWER PLANT
E
D
C
B
A
Scale - Feet
0
400
400
CONCRETE PLUGS OVER 30 FEET THICK INSTALLED EARLY 1950'S
ANMCC

EFFECTS OF A 2,000-MEGATON ATTACK ON 70 URBAN AREAS UPON THE RELIGIOUS COMPOSITION OF THE U.S.



nuclear stockpiles: megatonnage



Rocket-fire testing with the new Republic F-84F Thunderjet at Edwards Air Force Base, Muroc, California.

and the rockets ... for proof through the night!

SHIPS ARE SUNK by the bomb's shock wave within 1,800 feet of the explosion. Radioactive water pours down upon them from column of spray.

SHIPS ARE DAMAGED for half a mile around by blast pressure and wave. The base surge rolls over them, making them dangerously radioactive.

BUILDINGS ARE WRECKED within a half mile radius by the blast. Spray and radioactive mud from harbor floor comes from overhanging cloud.

BUILDINGS ARE DAMAGED within mile and a half. Plaster is cracked, glass is shattered and window frames and doors are driven in by the blast.

UNDERWATER BURST IS LESS DESTRUCTIVE BUT SPREADS DEADLY FOG

An air burst is more efficient in its destruction than an underwater burst. But since it is easier to deliver a bomb secretly by water than by air, a future war's first atomic explosion might take place in the harbor of some vital port city. First warning of an underwater burst, which emits no bright flash, is a shock wave which will cripple every ship within half a mile and damage every building for a mile around. Immediately after the shock wave a hollow column of spray rises from the water. It expands until it is half a mile thick and is crowned with a huge cauliflower-shaped cloud (*above*). From the foot of the column, the base surge, which is a bank of radioactive fog, rolls rapidly for a mile and a half in every direction, lifting after a few minutes to release a shower of radioactive rain. There is no sure protection against the fog which seeps in through windows shattered by the blast. But people can reduce the danger of radioactive contamination by washing themselves thoroughly soon after the blast. Homes can be made safer by scrubbing walls, floors and ceilings and burying—but not burning—clothes, linen, curtains and rugs. To make a city safe, every contaminated street and building will have to be sandblasted and sprayed with powerful detergents.

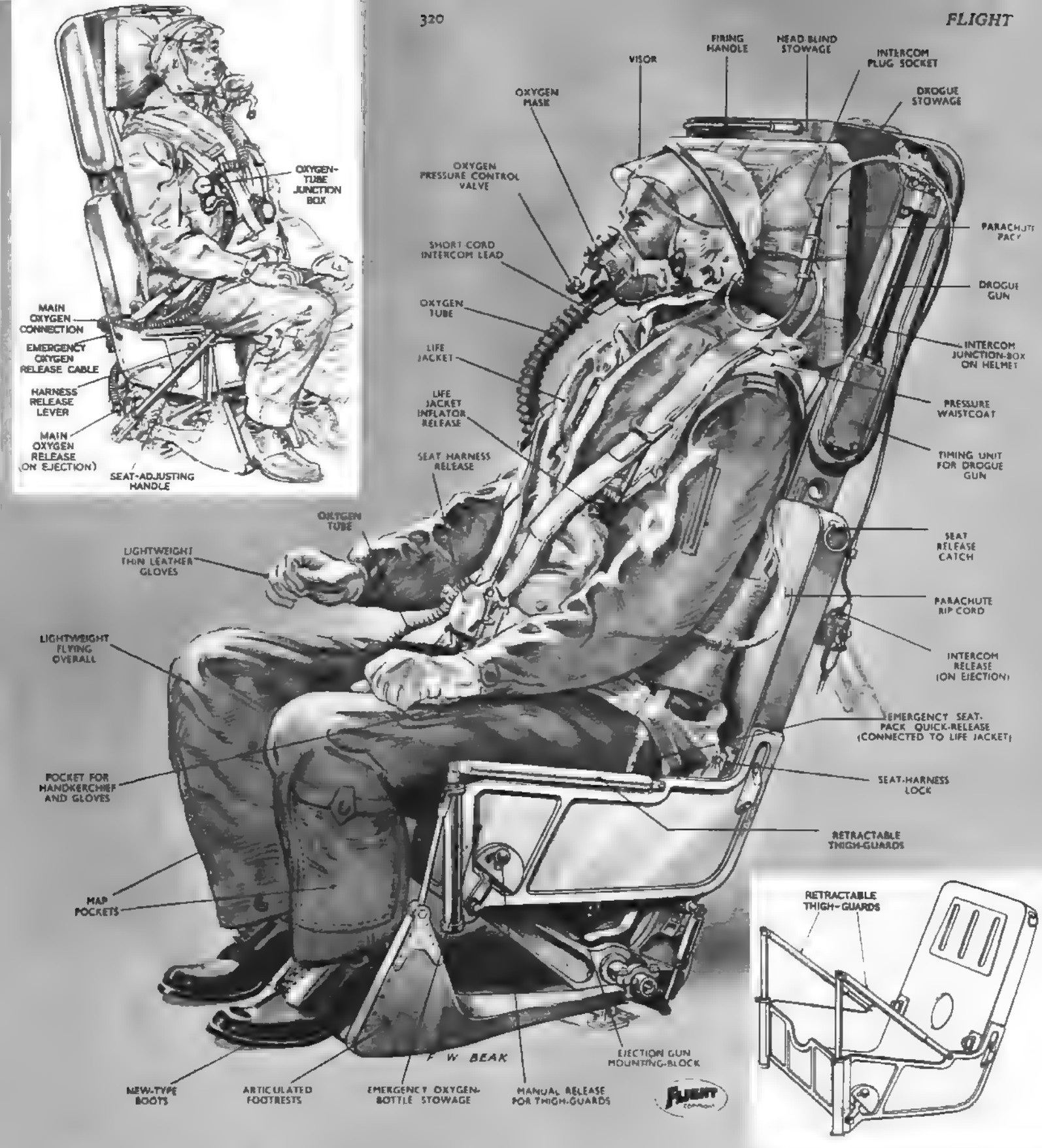
UNDERWATER BURST sends column two miles high over harbor which has already been damaged by the blast. Miniature tidal wave rolls out, and behind it, at foot of column, foggy base surge is forming.

← **BURYING CLOTHES,** draperies and linens will be necessary in most homes within a mile of the blast because of residual radioactivity which will be far greater in an underwater burst than in an air burst.

SANDBLASTING STRUCTURES which remain standing within a mile of the explosion will be essential to cleanse them of radioactive dust, grime and spray. Specially prepared detergents will be used. →

GLOSTER METEOR P.V.

GLOSTER AIRCRAFT COMPANY LIMITED · *Member of the Hawker Siddeley Group*



Installed and Equipped—
the Modern Service Pilot

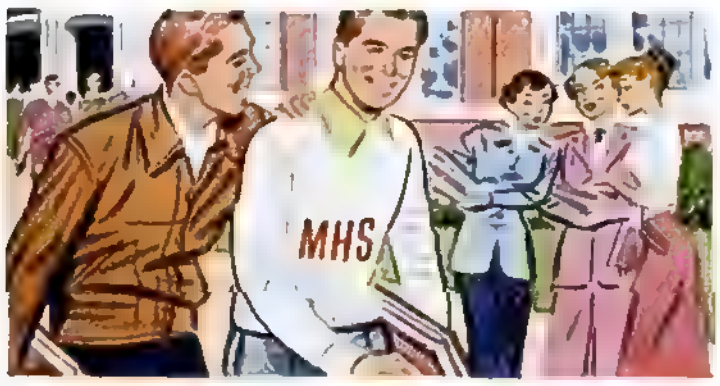
FOR their ready co-operation in the preparation of this pictorial feature we acknowledge our indebtedness to the School of Aviation Medicine, at Farnborough, and to the technical staff of the Martin-Baker Aircraft Co., Ltd. Prepared especially for this issue, the drawings display the newest safety devices and accoutrements developed in this country for Service use, and although both the Martin-Baker ejector seat and the pilot's apparel might appear, to the uninitiated eye, somewhat complicated, the reader may be assured that the utmost effort has been directed towards simplification, for from this virtue stems the qualities of lightness, positiveness of operation and freedom of movement.

CONSTANT AIR PATROL

SAUNDERS-ROE LTD

Wanted... More Men Like Mike !

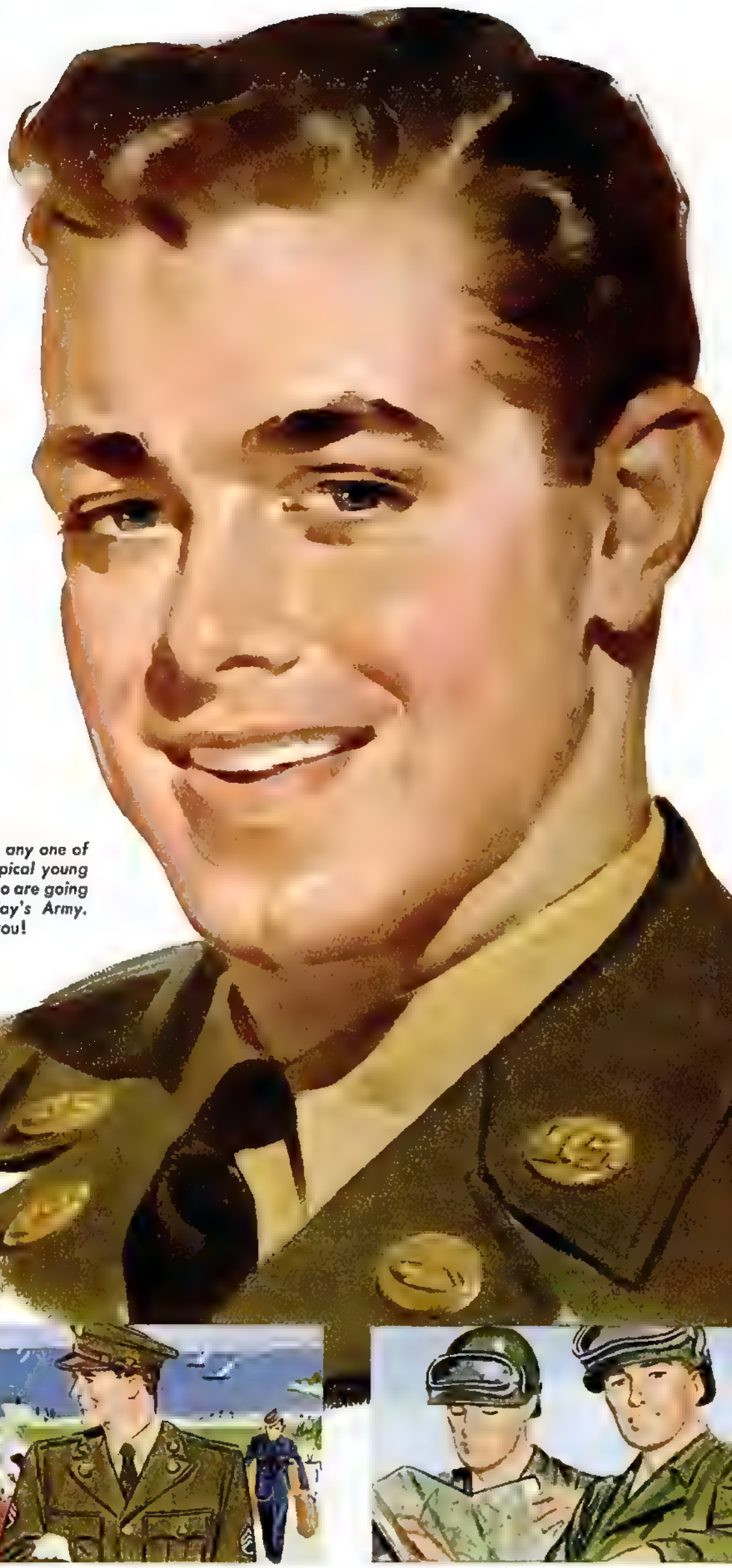
—men who want to go places, and have plenty of the stuff it takes to get there!



Mike lived a lively American boyhood. An average student, a popular athlete, he finished high school in '46, decided to start building a career in the Army.

Careful studies of Mike's personal aptitudes led to his selection for technical training in tanks and other armored vehicles. He took to it like a duck to water!

Finishing technical school as a Private, First Class, Mike progressed steadily in skill, efficiency and rank. Each year he took a 30-day vacation trip, with pay.



Mike could be any one of a thousand typical young career men who are going places in today's Army. He could be you!

Mike studied, worked, watched his chances. Finished his first "hitch" as a Sergeant. During leave he went home and married his pretty high school sweetheart.

Now, only four years after enlisting, Mike is a Sergeant, First Class, with an assured career ahead. He wouldn't trade places, or future opportunities, with anybody!

The young man of today who wants to get ahead can continue his education and start building a career at the same time, in the new U. S. Army. More than 200 courses of specialized training for many different career fields are taught in the various Army schools. Each man's abilities are charted, to place him where he should develop rapidly. He can work on the frontiers of military science with career-minded young men like himself, and serve his country with true professional pride. Today's U. S. Army is providing career opportunities for America's finest young men.

U. S. ARMY

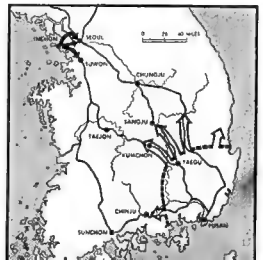
VISIT YOUR NEAREST U. S. ARMY AND U. S. AIR FORCE RECRUITING STATION

THE MARINES LAND AT INCH'ON AND TAKE THE CITY IN 12 HOURS

The plan for the invasion at Inch'on centered around the humped island of Wolmi (*in foreground*) which commands the harbor. Beginning at 6:30 a.m. the 3rd Battalion, 5th Regiment landed at Wolmi with tanks and an artillery battalion. By 9:30 the island was secure. As the tide was on the ebb (falling some 30 feet), the attack on the city proper waited until high tide at 5:30 p.m. This is the phase of the invasion represented in the drawing above.

In the left center of the picture the first assault wave of the 2nd Battalion, 5th Regiment is storming the 9½-foot sea wall at Red Beach. Behind it come the second and third waves of troops which, like the first, are riding in LCVPs (Landing Craft, Vehicle, Personnel). The landing is closely supported by artillery fire from Wolmi and tanks and troops advancing across the causeway from Wolmi to Inch'on. The four landing craft disgorging heavy equipment on Green Beach are LSTs (Landing Ships, Tank).

At upper right on Blue Beach, beyond the unfinished tidal basin and flats where sea salt is dried, the 1st Marine Regiment is making a landing simultaneously with the one on Red Beach. Its assault waves are hitting Blue Beach in LVTs (Landing Vehicles, Tracked), which are troop-carrying amphibious tractors. The boats at far right, LCVPs carrying the reserve units, are circling before forming into waves for their run to the beach. Supporting this landing are two rocket-firing ships close to the shore. Farther out are destroyers. At far left, beyond Red Beach, two other rocket ships bombard the city. The planes are Marine Corsairs. After making its landing, the 1st Regiment wheeled to the left and advanced into Inch'on, where it made contact with the 5th Regiment. The next day the two regiments began their attack eastward up the road to Seoul (*upper left*). By D-day plus nine the Inch'on invasion had carried to Seoul and changed the whole situation in the southern beachhead, as shown on map at right.



All Right...Let's Go

That's the squad leader's time-honored command to his men when rest is over and work remains to be done.

Today, however—and for many days past—this phrase has come to mean so much more than that to us and to the rest of the world.

Now, it is the rallying cry of peoples and nations determined to live together under a lawful system providing equal justice to all . . . powerful and weak alike.

But—like all rallying cries—it needed a voice . . . a man to say it . . . a man to make it stick. We had such a man for all the world to hear and see . . . the American Combat Soldier.

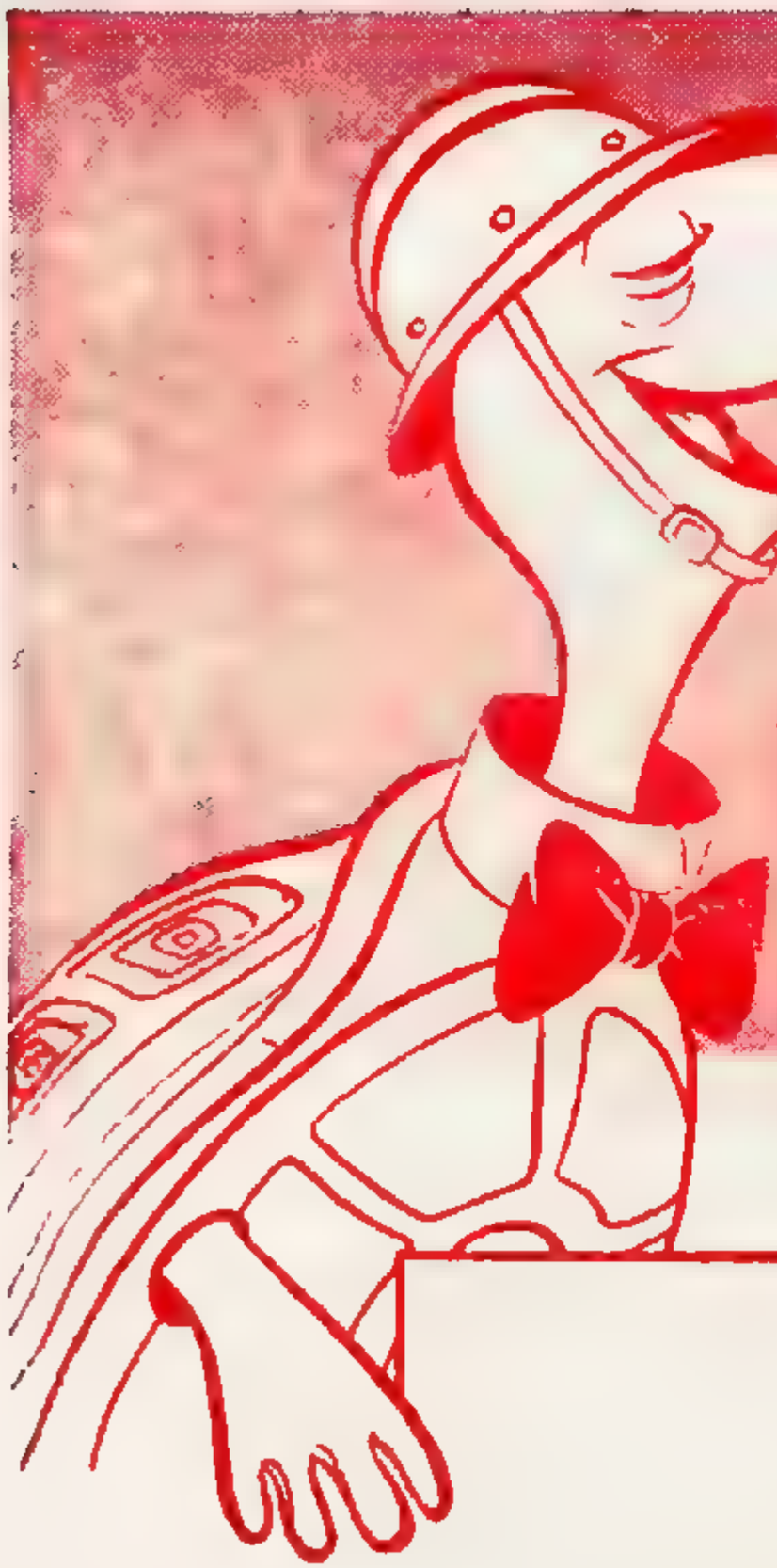
He was the first. He bore the brunt of the initial shock. He keeps the door of the future open while others take time to prepare.

He needs your help. He needs others serving alongside him. He needs volunteers. To all of you he says, "ALL RIGHT . . . LET'S GO." And he has earned the right to say it.

U. S. ARMY

VISIT YOUR NEAREST
U. S. ARMY AND U. S. AIR FORCE
RECRUITING STATION

RECRUITING
U.S. ARMY
U.S. AIR FORCE



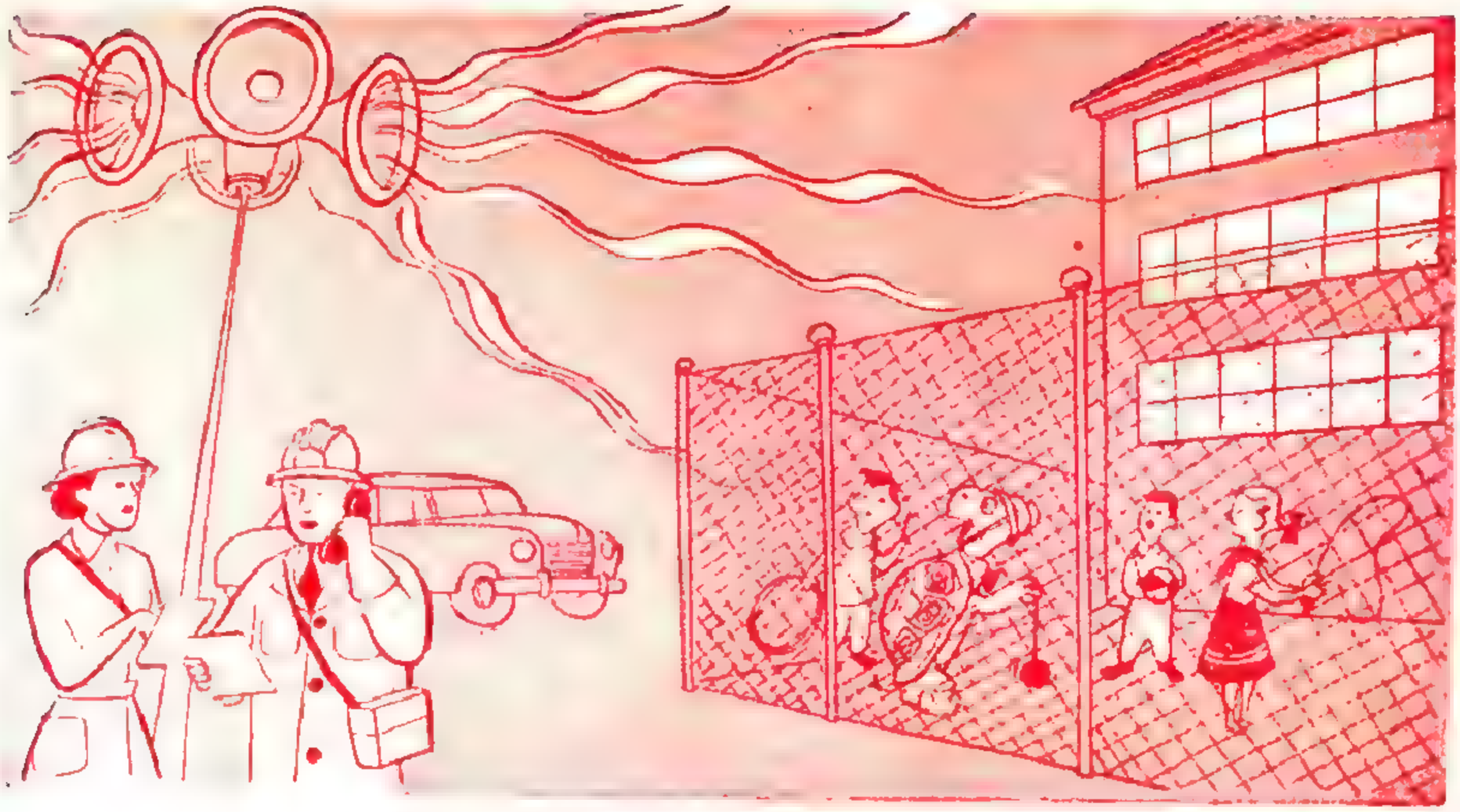
BERT the TURTLE*

says

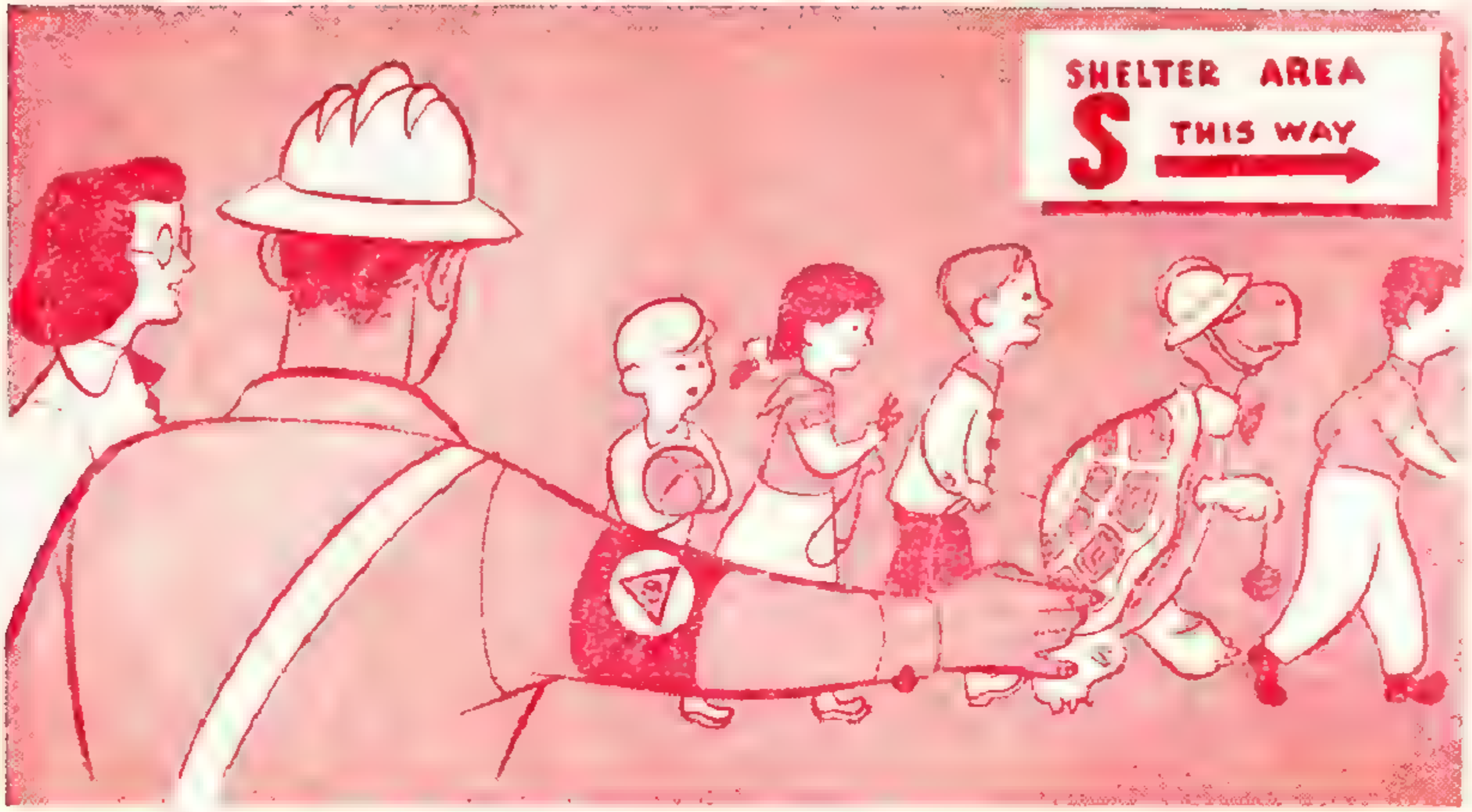
DUCK and COVER

*STAR OF THE OFFICIAL U. S. CIVIL DEFENSE FILM "DUCK AND COVER"

A reprint of the Federal Civil Defense Administration's booklet.



YOUR CITY AND ITS CIVIL DEFENSE WILL TRY
TO WARN YOU WITH A SPECIAL ALARM IN TIME
TO GO TO SPECIAL SHELTER... THEN...



YOU MUST GO QUICKLY AND QUIETLY TO THE SPECIAL SHELTER AS THE BLOCK WARDEN, YOUR TEACHER OR YOUR PARENTS TELL YOU.

CLUB

. . . THIS IS HOW YOU CAN PROTECT YOURSELF

CROUCH BEHIND TREE, if one is within two steps, the instant the bomb's blinding light appears. Turn away from the blast. Cover face, neck, hands to protect them from searing heat of the flash burn.

DODGE INTO DOORWAY, which will offer moderate protection against the flash and falling rubble. If you are pushing baby carriage, cover infant and exposed parts of your body with the baby's blanket.

FALL FLAT ON SIDEWALK if there is no shelter close at hand. Press body tight against wall of building so that debris will fall beyond you. If you are carrying a briefcase or paper, shield your head with it.

CRAWL UNDER TABLE if you are indoors, for then main danger is shock wave's damage (caved-in roof, hurtling debris) rather than burns. Tablecloth yanked over body will help ward off glass splinters.

DIVE UNDER DESK, back to window, immediately after the flash, to minimize cuts from concussion-blasted windows. If building is modern and at least 1½ miles from explosion, walls will not collapse.

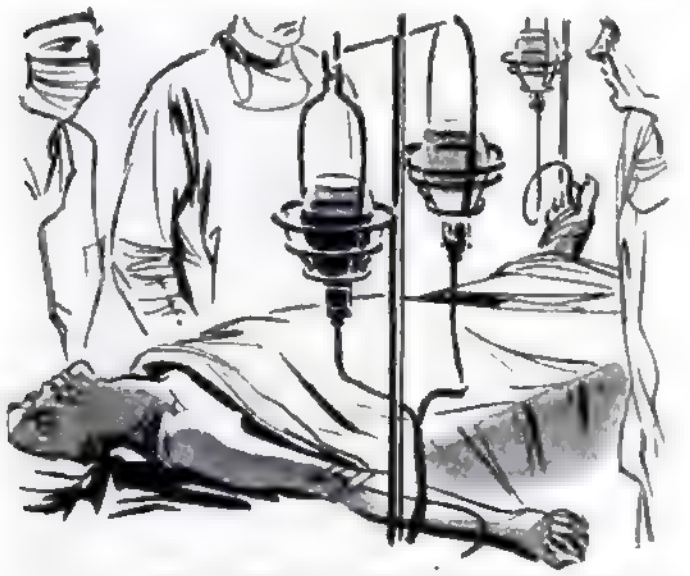
JUMP INTO TRENCH, or any other convenient depression in ground, if you are in your yard when a bomb explodes. If drying laundry is within reach, pull it over you so that it will protect you from heat.

. . . THIS IS WHAT MUST BE DONE

FIGHTING FIRES will be a major job, for heat flash will set buildings aflame, and concussion will ruin or severely damage gas tanks within a mile, causing huge fires to spring up in many different places.

DETECTING RADIOACTIVITY will be duty of monitoring crews. Protected by masks and coveralls, men will hold Geiger counters over area, listening through earphones for ticking of contamination.

RESCUING WOUNDED from debris, emergency squads will need the aid of bulldozers. Many thousands of people will be trapped in the ruins of buildings knocked down by the force of the shock wave.



GIVING TRANSFUSIONS will be biggest job in casualty station because of large number of people wounded by flying glass and masonry. Whole blood and special nutrients will help reduce physical shock.

TREATING BURNS will be a particularly urgent task because the heat radiation from an air blast will cause flash burns on anyone within a mile who is in the open and has not covered exposed skin surfaces.

ANALYZING BLOOD of all patients will be done promptly by technicians to find out whether there is sharp fall in number of white blood cells—a sign that the patient probably suffers from radiation sickness.

unit. The vehicles assigned should be closed or covered trucks, if available, but ordinary flat bed, stake, or dump trucks may have to be used. Ambulances, hearses, and panel-body trucks ordinarily used by funeral directors probably will have been requisitioned for the use of living casualties.

2.6 Because of the probable magnitude of a nuclear bomb disaster, the lack of usual facilities for preservation, and the shortage of specially trained manpower, it will be necessary to depart from the usual methods of identification. Only a few minutes per body will be available for complete processing. Personal effects should be kept with the body until removed by the identification teams who will segregate

Form Approved
Budget Bureau 57-R008

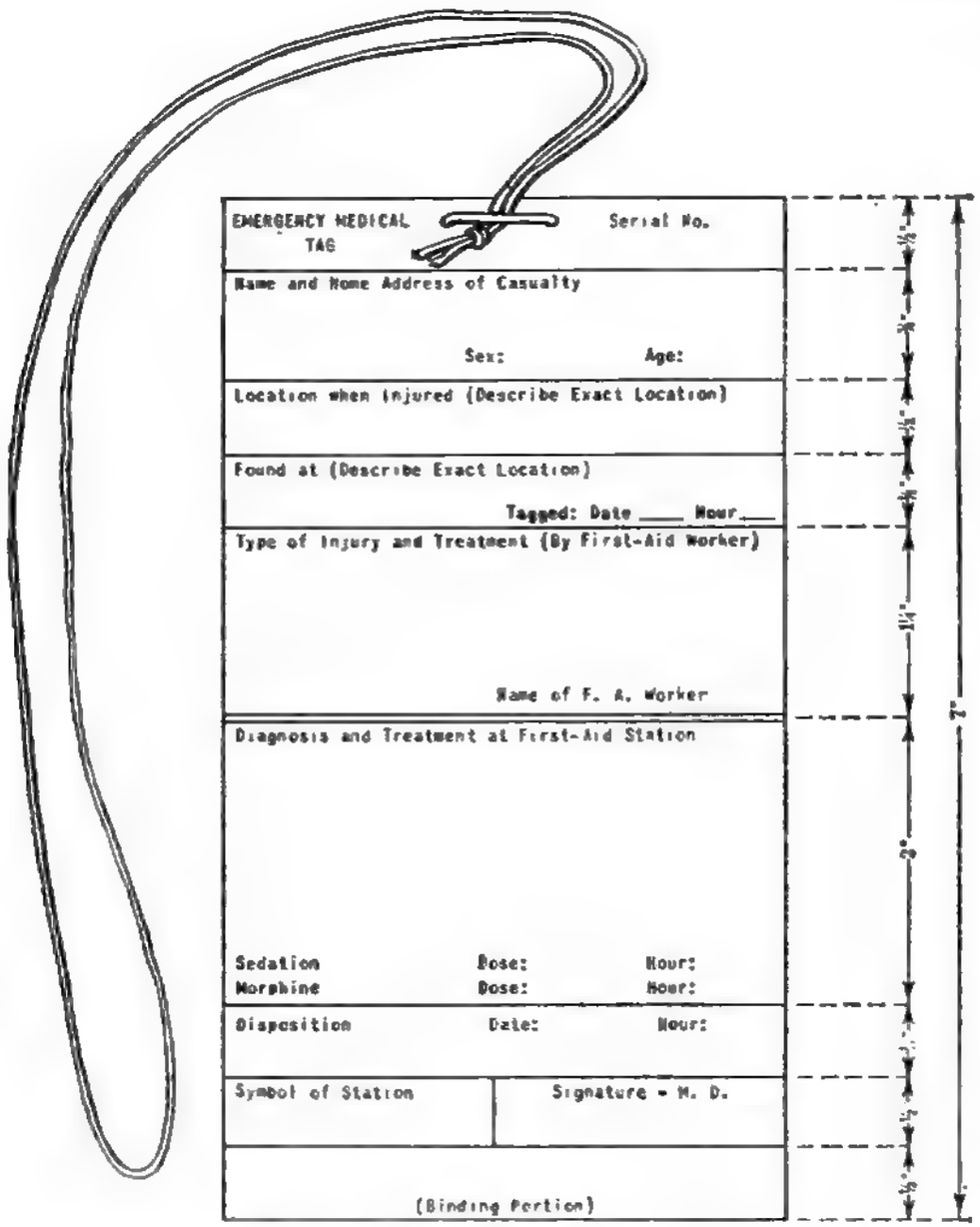


FIGURE 1.—Face of emergency medical tag.

and store them. The disaster load will require that bodies be removed in groups with as many bodies as possible to a vehicle. Each body should be wrapped together with its personal effects in an individual mortuary wrap to prevent loss or intermingling of personal effects. If the personal effects include identification cards, or tags, letters or other items of similar nature, tentative identification can be made by the collection team and should be entered on the emergency medical tag.

2.7 The body should be transported to a previously designated mortuary area as close as practicable to the burial area to be used. Here the mortuary wraps should be opened by identification teams,

Form Approved
Budget Bureau 57-R008

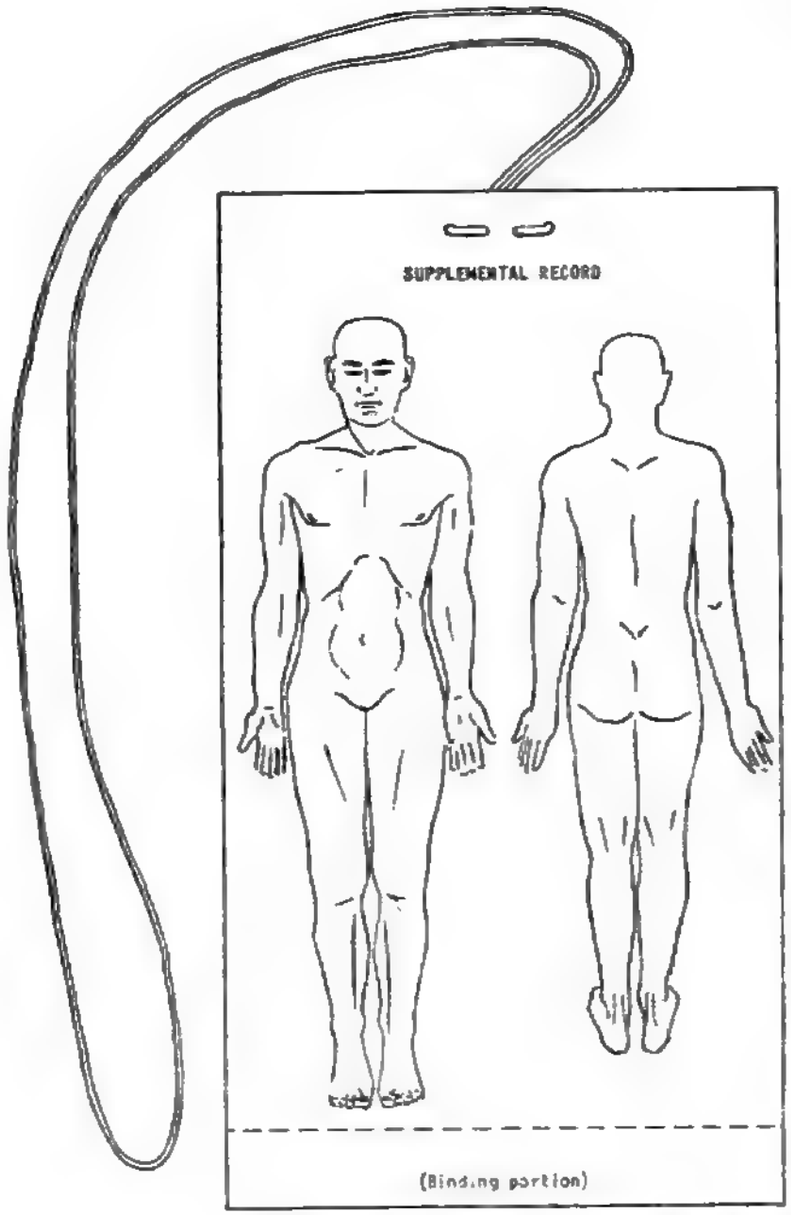


FIGURE 2. Back of emergency medical tag.

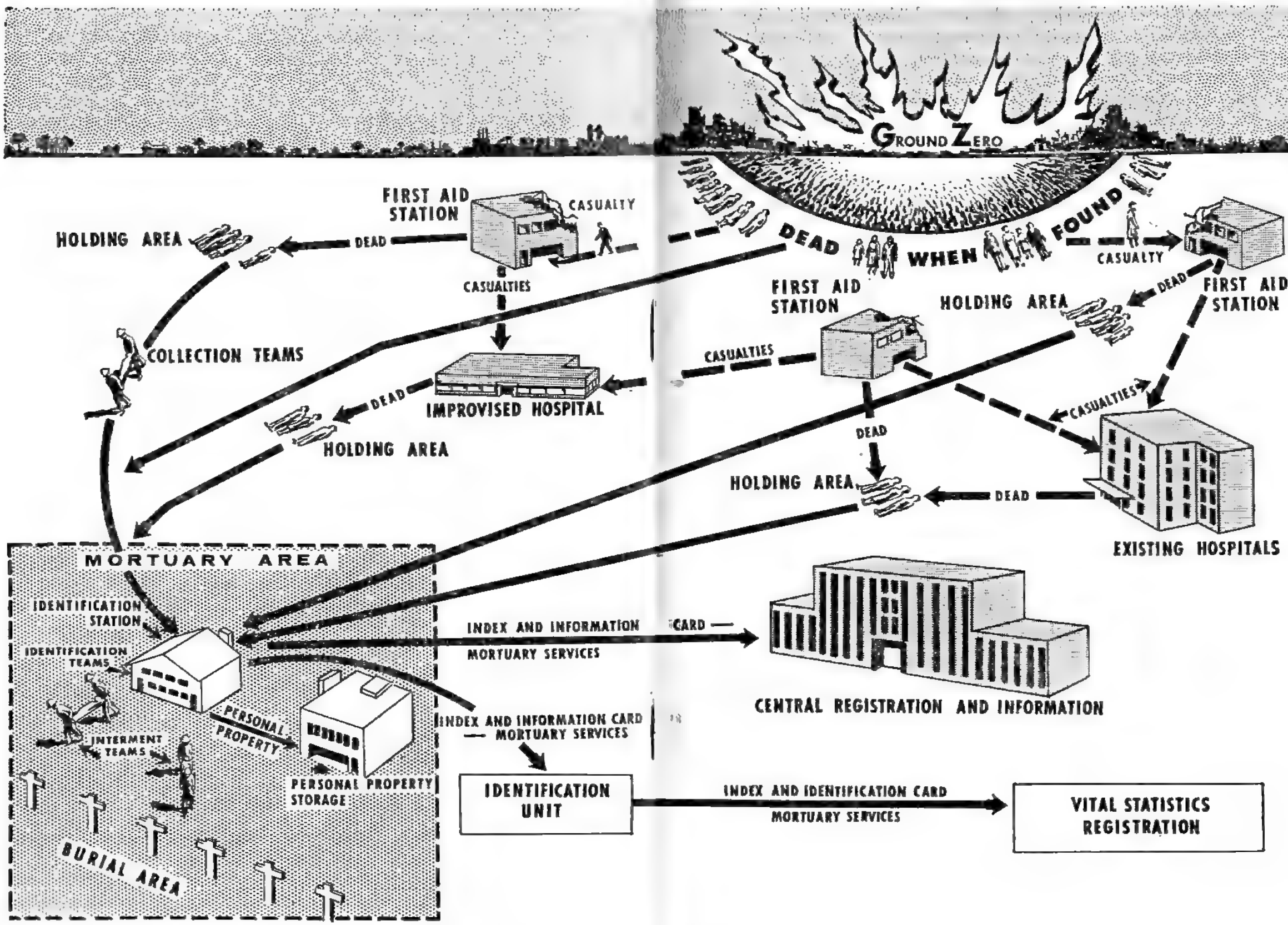


FIGURE 4.—Mortuary services flow chart.

HALT

197
11-01
4
WEST

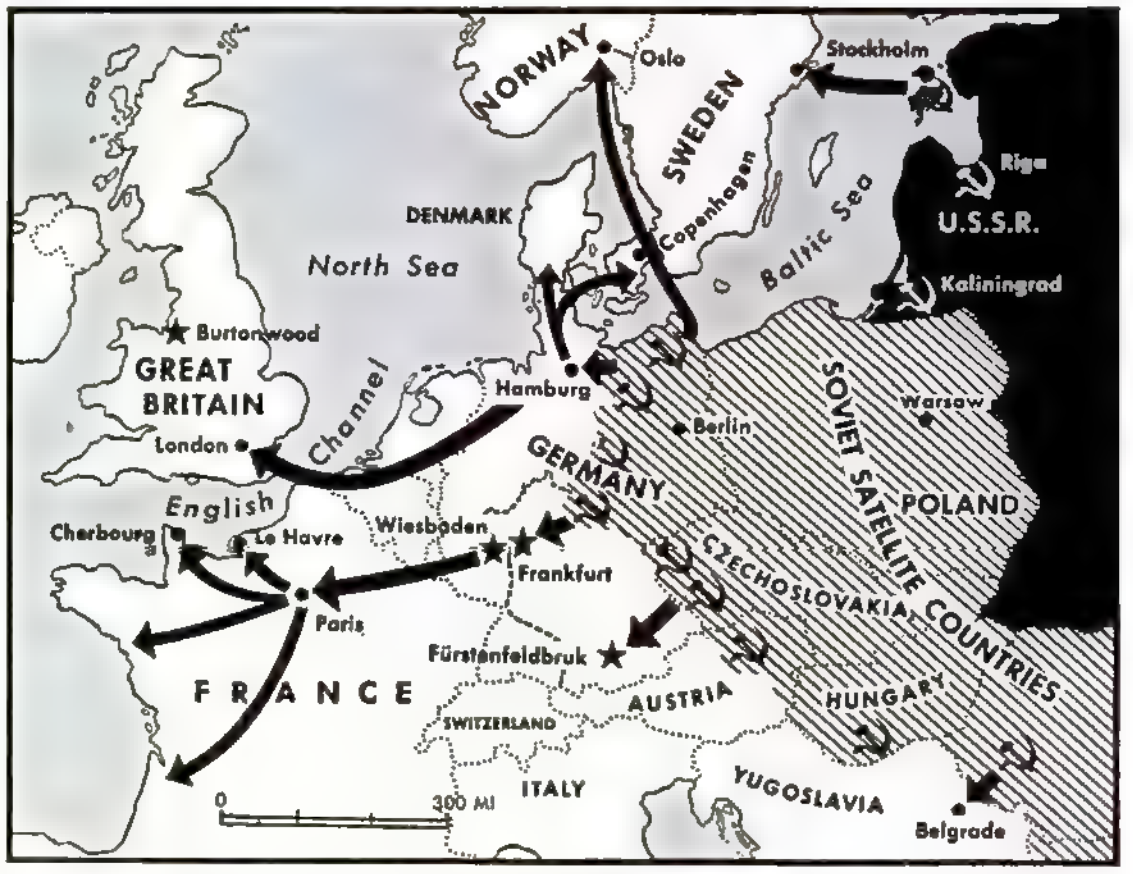
USAF
U.S. AIR FORCE
USAF

RED MILITARY ADVANTAGE GROWS

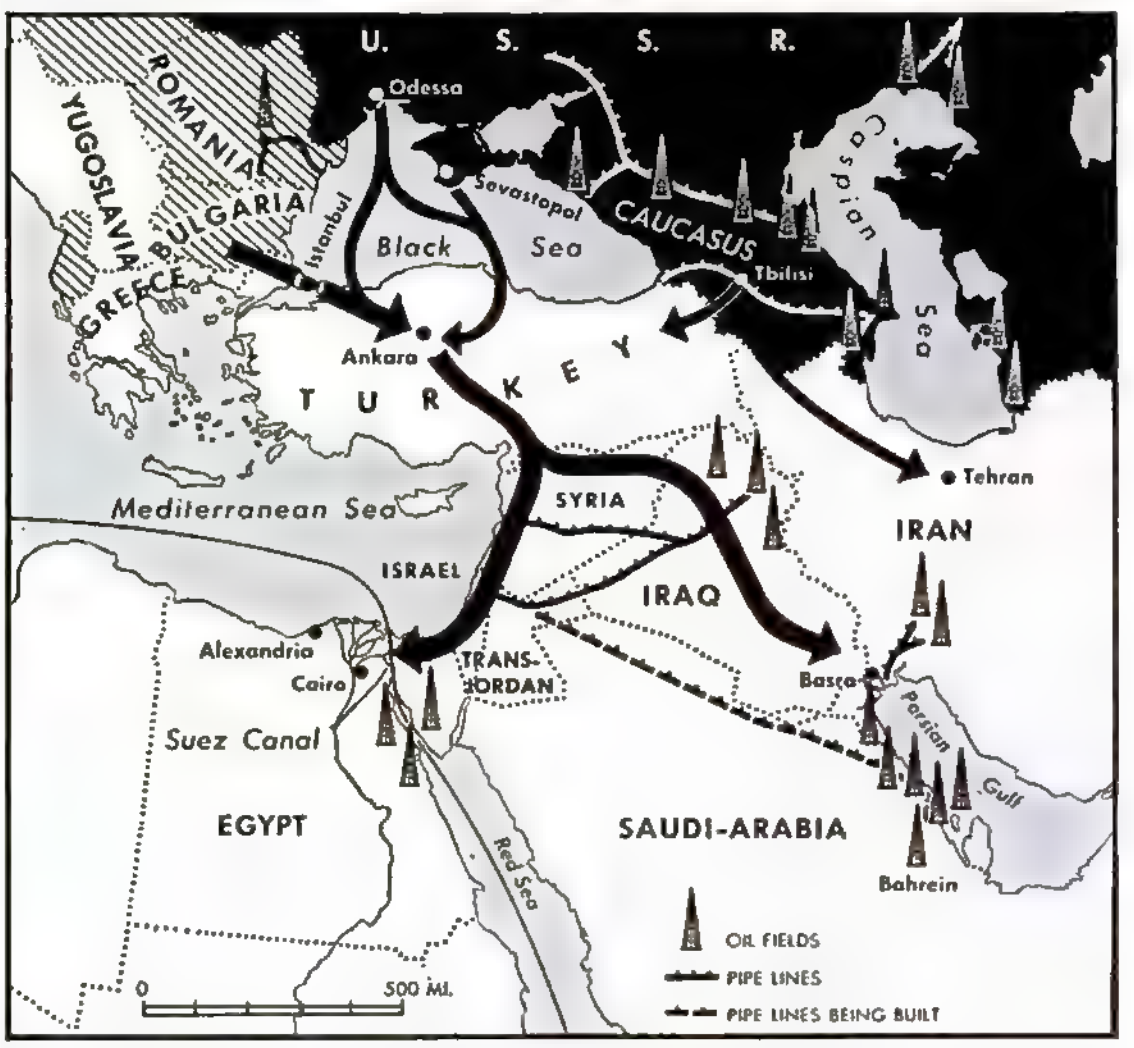
Since secrecy hides most military statistics, this chart is based largely on well-qualified estimates. Included are main comparable elements of military forces of both powers. The U.S. Navy's mothball fleet is not indicated. Nor are the Navy's 5,500 combat planes or 3,000 trainers, which are essentially part of the carrier force and thus help create our superior surface fleet, shown at bottom of chart.

	U.S.S.R.	U.S.
NATIONAL INCOME	$65,000,000,000	$222,000,000,000
MILITARY'S SHARE OF INCOME	25%	6%
AIR FORCE		
COMBAT PLANES	9,000	3,300
TRANSPORT AND OTHERS	8,000	5,600
ANNUAL PRODUCTION OF PLANES	7,000	1,200
ARMY		
MEN	2,600,000	640,000
INFANTRY AND AIRBORNE DIVISIONS	125	9
ARMORED DIVISIONS	30	1
NAVY		
SUBMARINES	270	74
SURFACE VESSELS	127	164

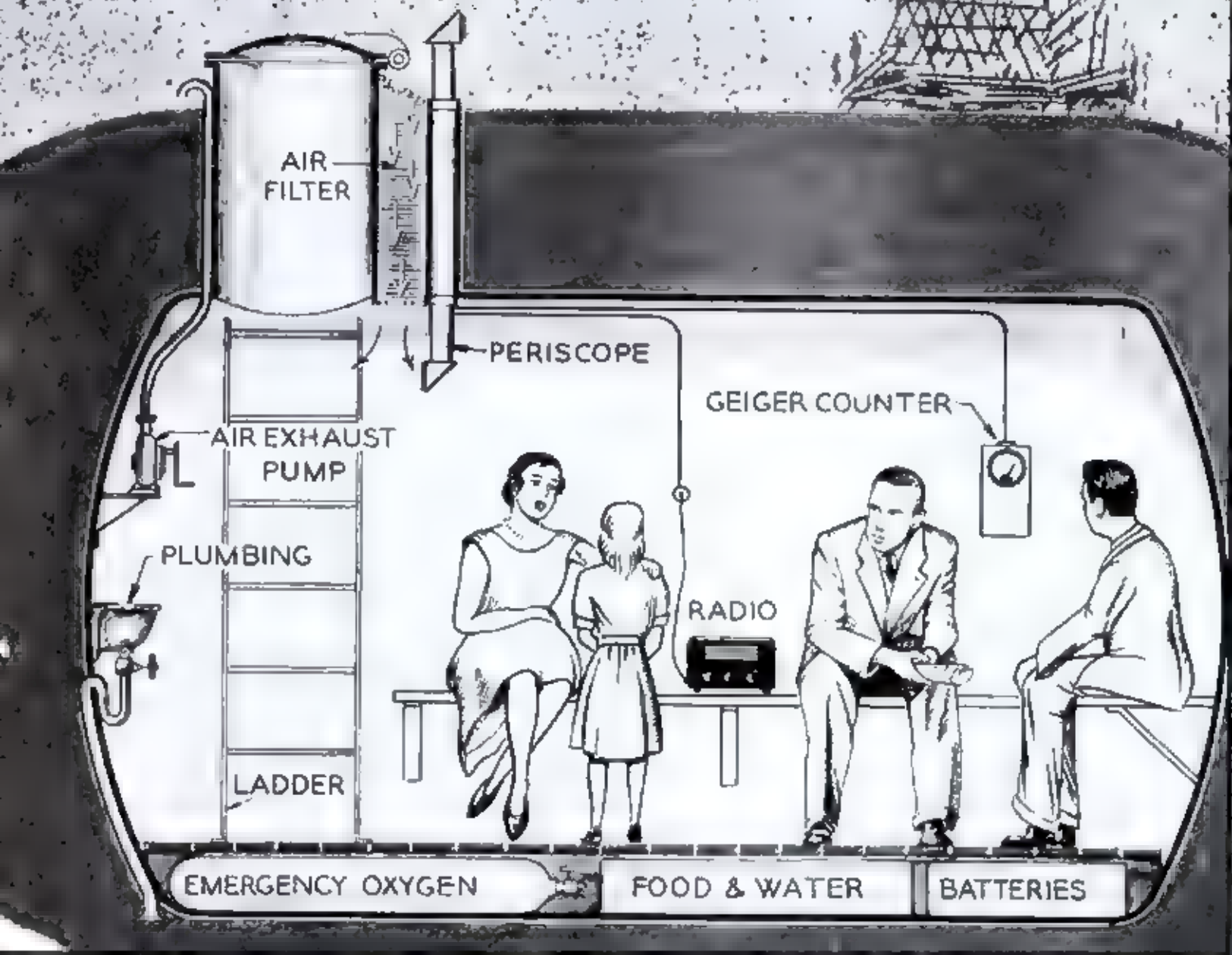
EASTWARD ATTACK could aim at quick destruction of U.S. bases in Alaska, to be followed by invasion from Siberia, an area the Red army has been stock-piling for years. Neutralizing Alaska would facilitate bombing of the U.S. from eastern Siberian bases.



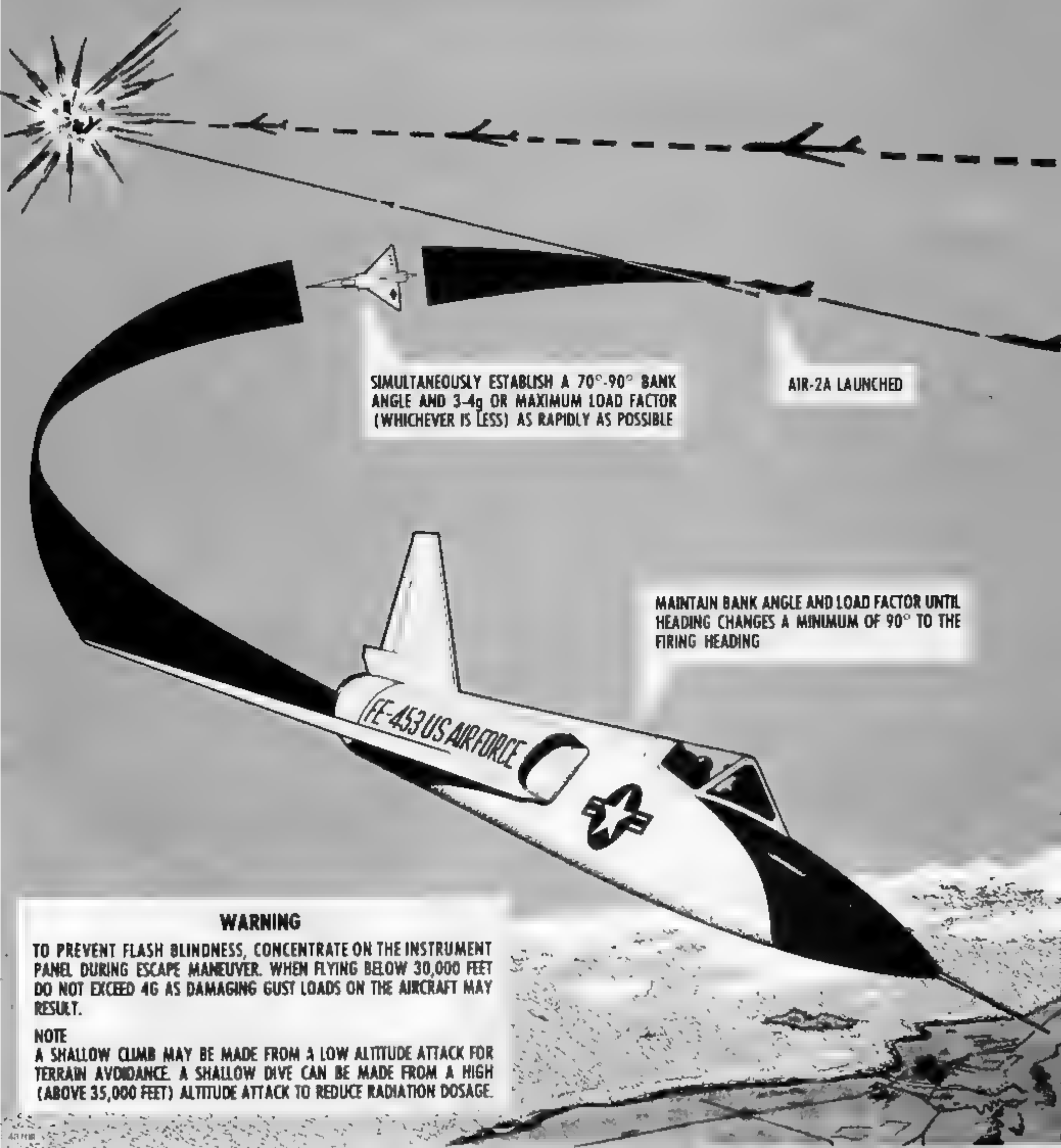
WESTWARD ATTACK could hurl Red armies across Europe along most or all routes shown by arrows on the map above. By taking Norway and France, the Soviets would gain vital air and submarine bases as well as jump-off points for an invasion of England.



SOUTHWARD ATTACK could move probably from Bulgaria across Bosporus, with other drives out of south Russia. By winning the Suez and Middle East, the Reds would sever the West's global life line and deprive U.S. and allies of a vital oil supply.


AIR FILTER
PERISCOPE
GEIGER COUNTER
AIR EXHAUST PUMP
PLUMBING
RADIO
LADDER
EMERGENCY OXYGEN
FOOD & WATER
BATTERIES

AIR-2A level turn escape maneuver
(2,000 feet to 45,000 feet)


SIMULTANEOUSLY ESTABLISH A 70°-90° BANK ANGLE AND 3-4g OR MAXIMUM LOAD FACTOR (WHICHEVER IS LESS) AS RAPIDLY AS POSSIBLE
AIR-2A LAUNCHED
MAINTAIN BANK ANGLE AND LOAD FACTOR UNTIL HEADING CHANGES A MINIMUM OF 90° TO THE FIRING HEADING
FE-453 US AIR FORCE

WARNING

TO PREVENT FLASH BLINDNESS, CONCENTRATE ON THE INSTRUMENT PANEL DURING ESCAPE MANEUVER. WHEN FLYING BELOW 30,000 FEET DO NOT EXCEED 4G AS DAMAGING GUST LOADS ON THE AIRCRAFT MAY RESULT.

NOTE

A SHALLOW CLIMB MAY BE MADE FROM A LOW ALTITUDE ATTACK FOR TERRAIN AVOIDANCE. A SHALLOW DIVE CAN BE MADE FROM A HIGH (ABOVE 35,000 FEET) ALTITUDE ATTACK TO REDUCE RADIATION DOSAGE.

Collier's

NOVEMBER 27, 1953 • FIFTEEN CENTS

IN NORTH KOREA P.O.W. CAMPS

Why Did Some GIs Turn Communist?

•

10 WAYS TO

MAKE YOUR WIFE MORE USEFUL

•

H. ALLEN SMITH on

Practical Jokes

EXCLUSIVE

G-GAS

A New Weapon of Chilling Terror

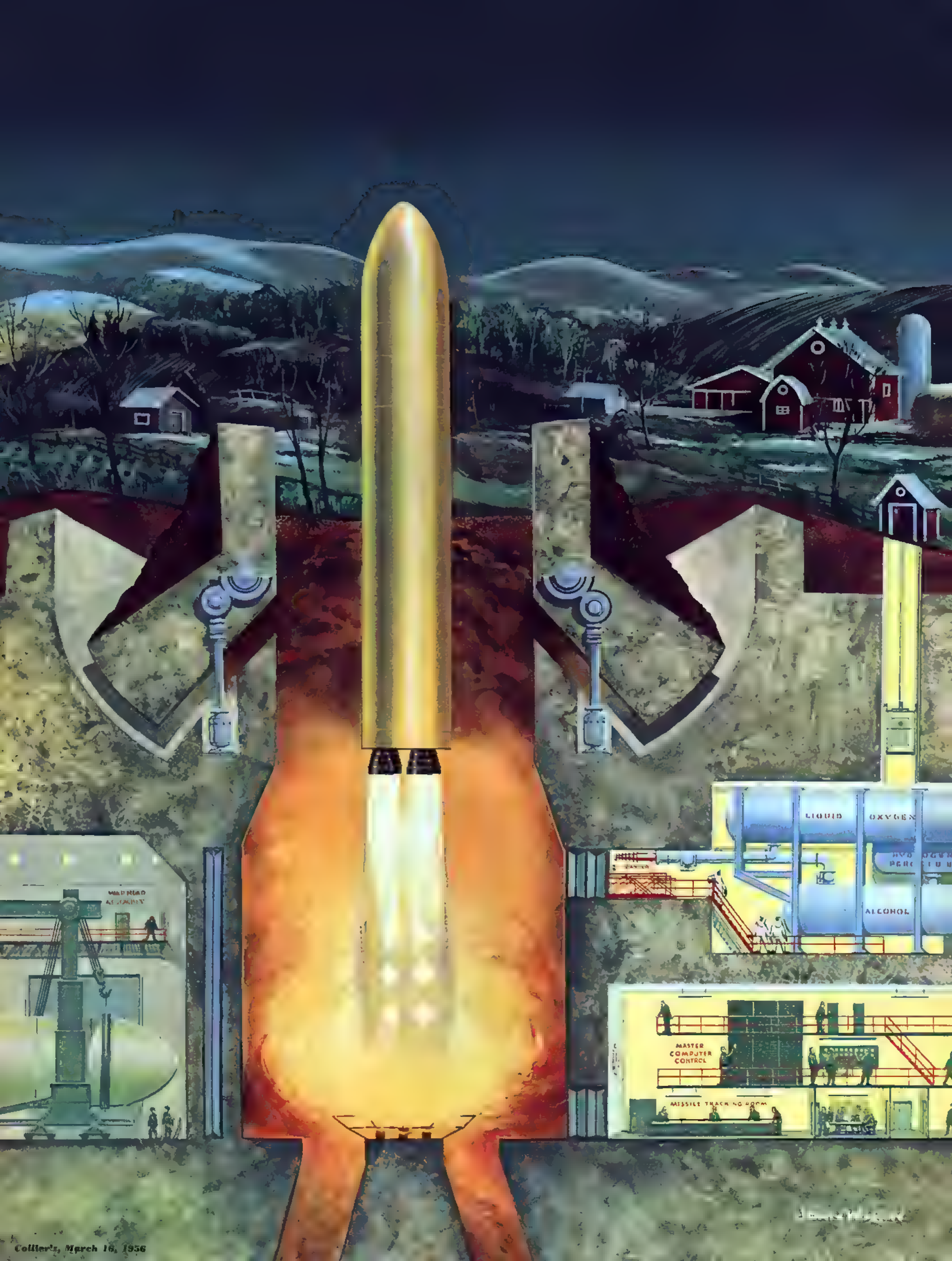
WE HAVE IT—SO DOES RUSSIA

Northern Chrome Dome Route

October 1962

Daily Chrome Dome sortie flown during October 1962 by B-52G aircraft from the 4126th Strategic Wing (H) at Beale Air Force Base, California. Each bomber carried four B28 thermonuclear bombs. The alternate route along DEW Line sites would be flown in case of HF radio malfunction.

History of the 4126th Strategic Wing, Hist[illegible]
1 31 October 1962, HHC 4126-H, [illegible]


LIQUID
OXYGEN
ALCOHOL
MASTER
COMPUTER
CONTROL

LONG-RANGER—The North American AJ-1 attack-bomber is the biggest aircraft ever built to operate from a carrier. It will carry a heavier bomb load farther, faster and higher than any other carrier-based airplane. The AJ-1 is powered by two Pratt & Whitney Double Wasp engines of 2,300 h. p. each, and a single J-33 jet engine. It is shown here joining up with Vought Corsair fighter-bombers.

A SPECIAL MESSAGE

FOR HIGH SCHOOL GRADUATES

Your United States Army's Signal Corps has a special message for intelligent high school graduates. It is a call to the world's finest technical training . . . the training that produces the specialists who help keep your Army great.

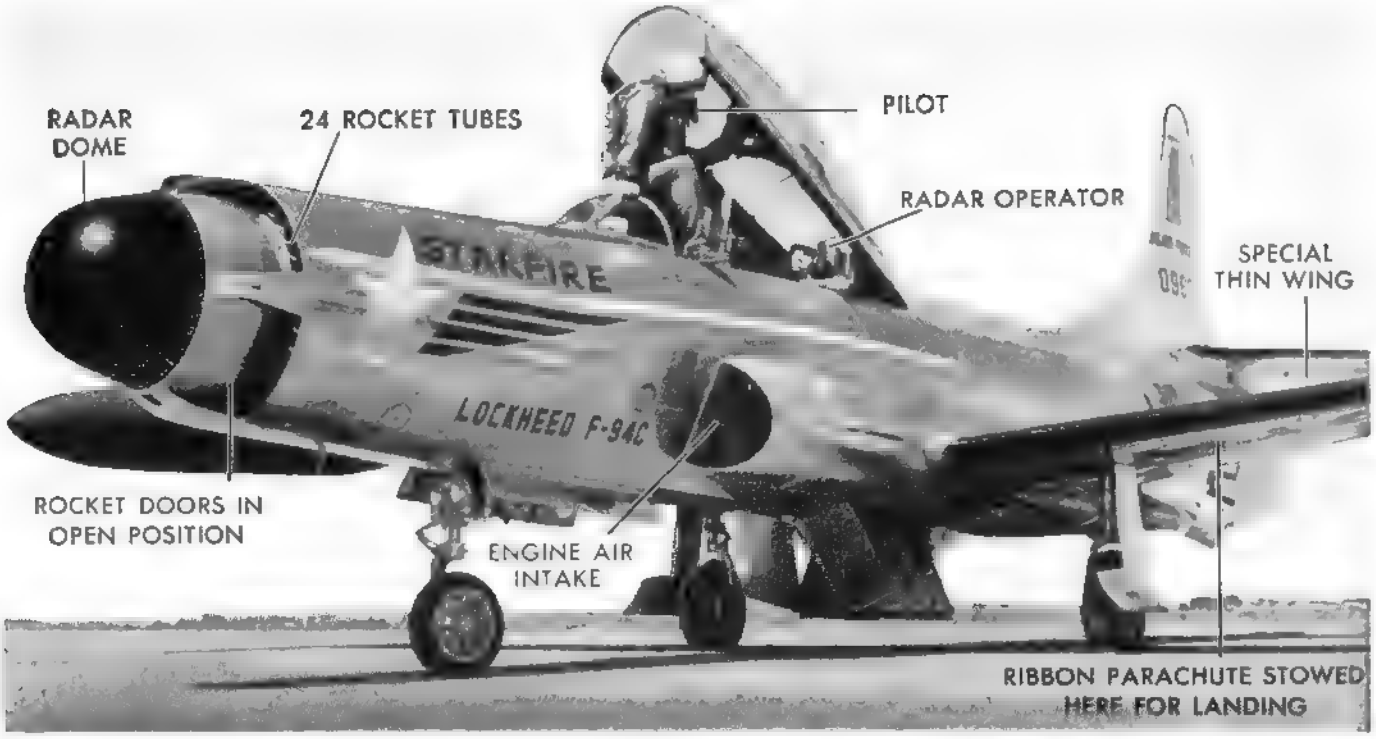
Signal trained soldiers are the men who bind an Army together with modern communications. They work with the latest electronic equipment . . . from the smallest handie-talkie to globe-girdling radio nets, from field telephones to all-seeing radar. These men are the "nerve specialists" of modern combat.

You may qualify for a fine Signal Corps school after basic training. This will give you even better chances to get ahead fast in your growing U. S. Army. Ask for the details, *today*, at your U. S. Army and U. S. Air Force Recruiting Station.

U. S. ARMY

THE MARK OF A MAN!

These crossed flags, insignia of the U S. Army Signal Corps, mark a man who has measured up to the mark.

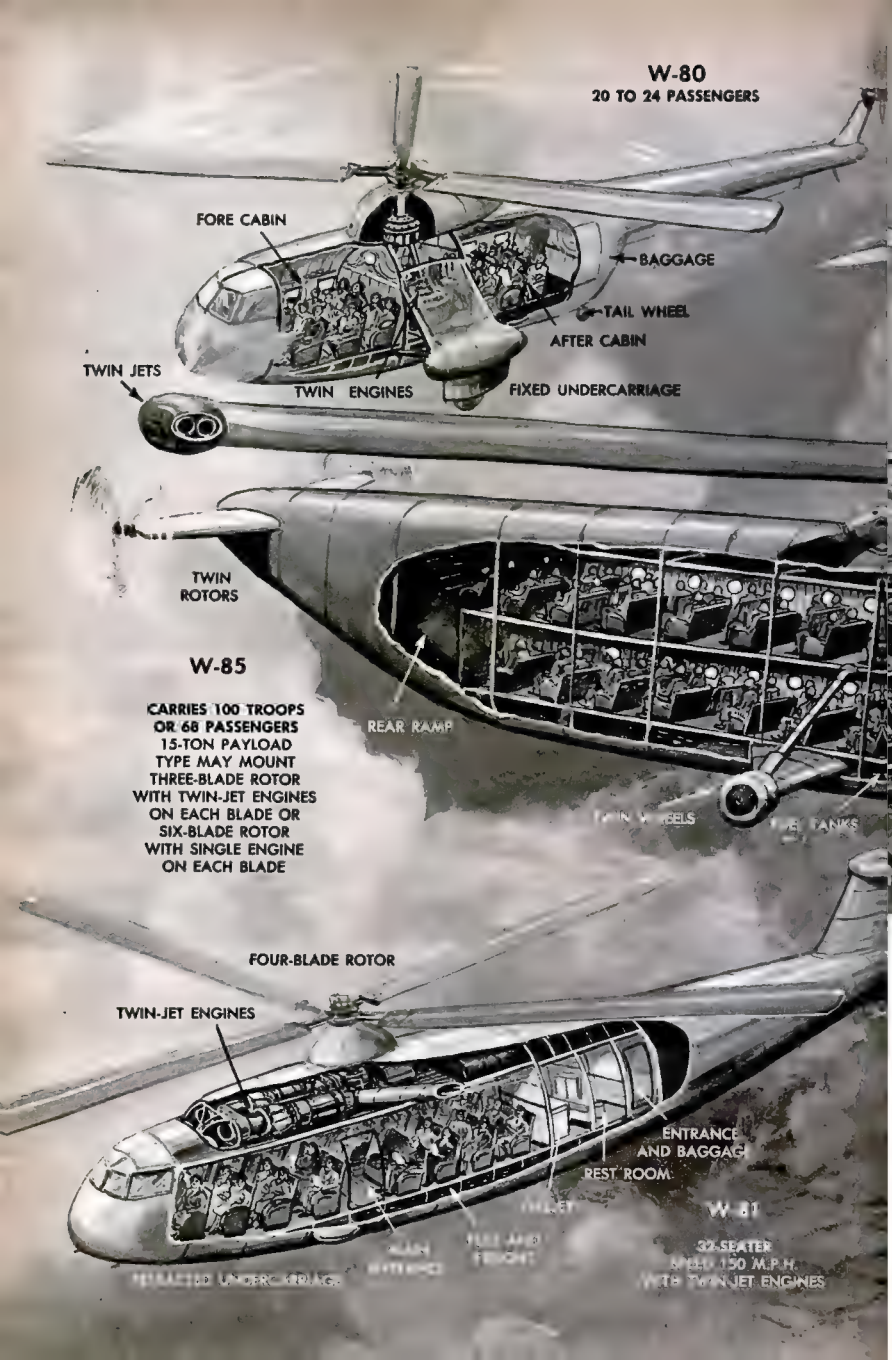


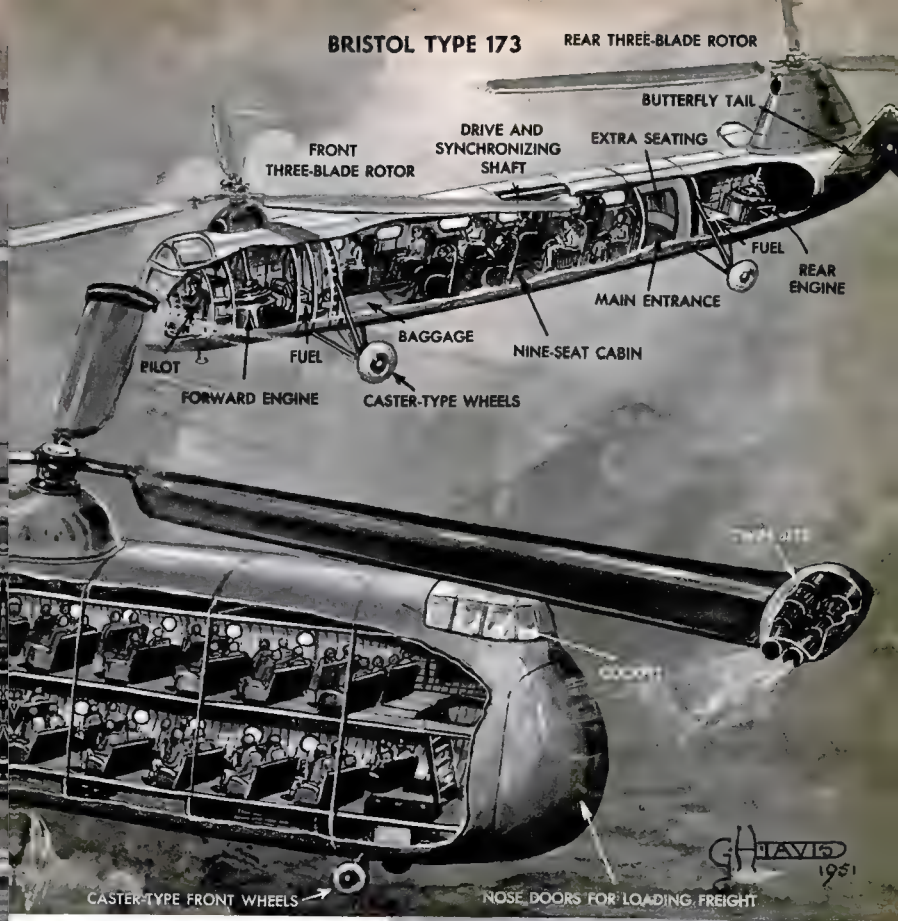
24 Rockets Ring Nose Of Lockheed's Jet Starfire

Bristling with 24 air-to-air rockets housed in a ring around its nose, the Lockheed C-94C Starfire is an almost-automatic jet airplane. Radar and specialized, brain-like instruments enable it to spot the enemy miles away, lock onto the target, track, close and open fire—all by itself. The Starfire carries two dozen 2.75-inch rockets. It has a top speed of over 600 miles an hour and exceeds 20,000 pounds fully loaded.

Rugged Patton Tank Has One-Piece Cast Hull

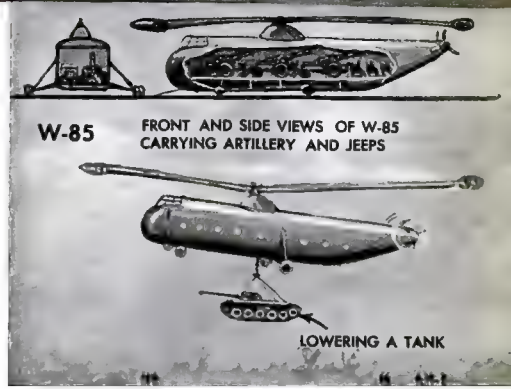
With the first one-piece hull ever cast, the new Patton 48 tanks are going into service as the U. S. Army's most rugged medium armor. Their sloping, elliptical sides afford greater protection and better vision to the crew. In the 45-50-ton class, the Patton carries a four-man crew. A high-velocity 90-mm. gun is augmented by one 30-caliber and two .50-caliber machine guns. Unique is the placement of one .50-caliber gun atop the turret; it can be aimed, fired and reloaded from inside the tank without exposing any crew member. The Patton has power steering and a cross-drive transmission that eliminates driver fatigue. Its Chrysler engine develops 810 horsepower.





Helicopter Forecast From England

Several experimental helicopters have been built in England or now are in the design stage. Type 173, shown at top of page, has two motors to power the two rotors. Should either motor fail, the other can be used to drive both rotors. The W-81, at left, has two turbojet units, placed side by side, which are expected to give the aircraft speeds up to 150 miles per hour. The huge W-85, above, is designed to airlift about 100 troops in military use



MARCH 1952 50th ANNIVERSARY YEAR 35 CENTS

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UNDERSTAND IT

REG. U.S. PAT. OFF.

See page 88

In This Issue

The story of your Navy recruit—

FROM BOOT TO ELECTRONIC WHIZ-KID

For the Craftsman

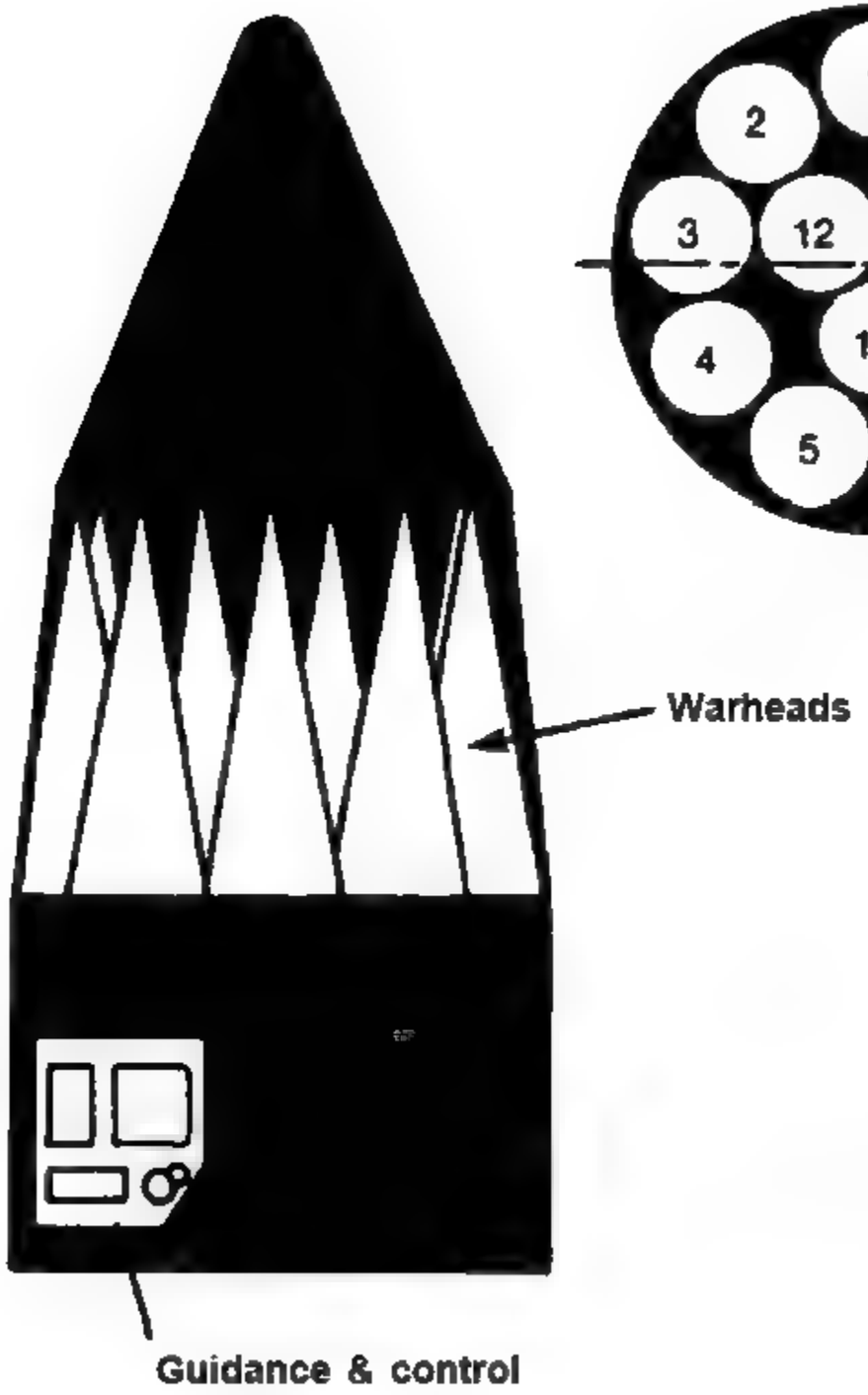
Stop Those Roof Leaks

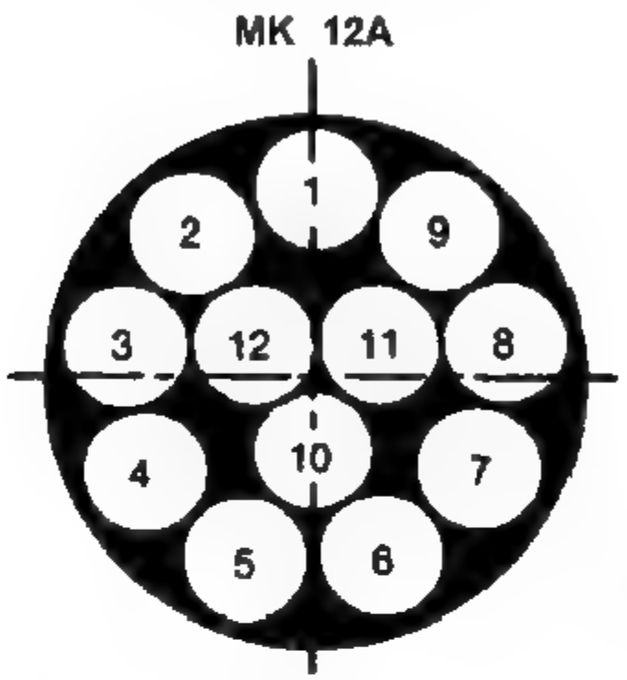
Take Care of Your Car Battery

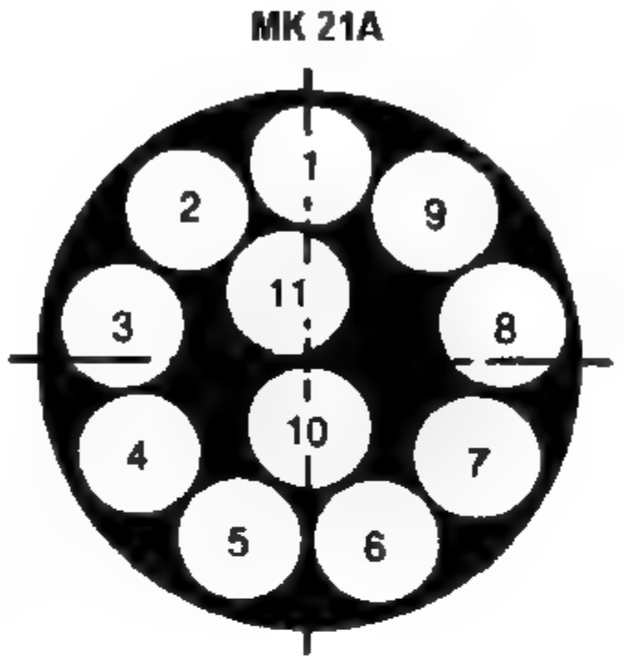
ATOM AGE INFANTRY
US
ATOM AGE INFANTRYMEN WILL BE SUPERCHARGED BY SMALL ROCKETS STRAPPED TO THEIR BACKS!
FREED OF THE DRAG OF GRAVITY, THE FLAMING FOOT SOLDIERS WILL BE ABLE TO RUN AS FAST AS RACEHORSES!
THEY WILL SOAR OVER BARRICADES WITH AMAZING EASE...
AND SCALE THE STEEPEST CLIFFS...
ON THEIR PATH TO VICTORY!

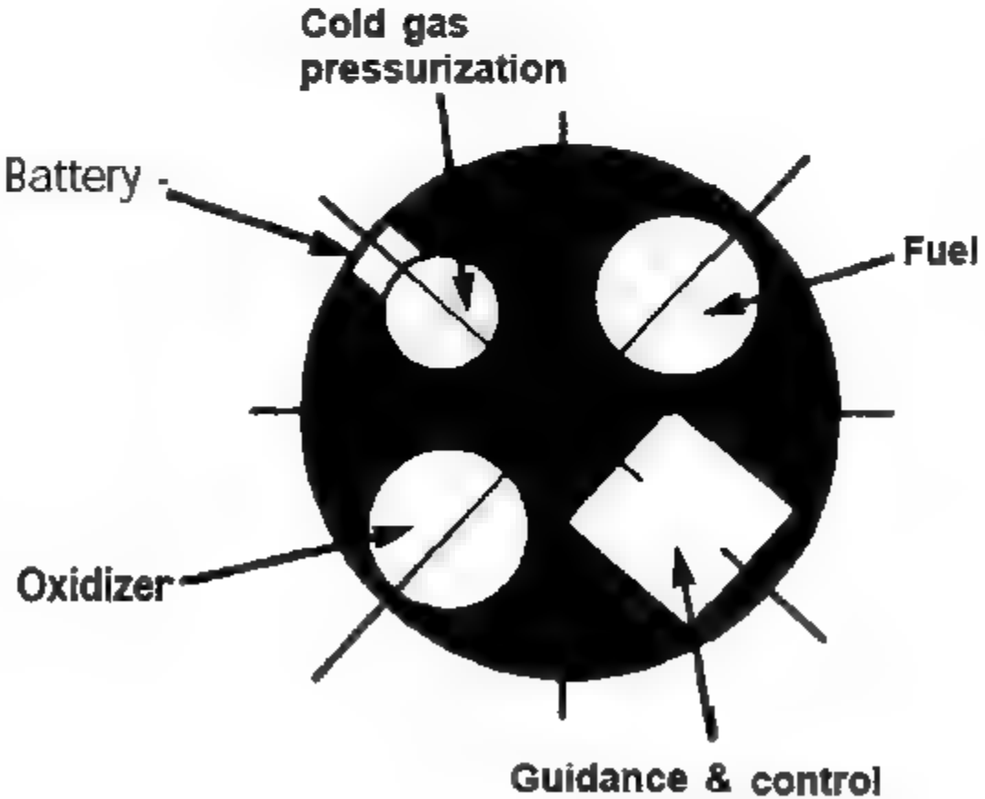
ATOM AGE COMBAT, Vol 1, No. 2, January 1959 Published bi-monthly by Fago Magazines, Inc. Old Tavern Road, Orange, Conn. Application for second class entry pending at Post Office Holyoke, Mass. 10 cents per copy Subscription rates $2 00 per year, including postage. Not responsible for loss or non return of manuscripts, photos, and drawings, which must be accompanied by return postage. Names of characters used in fiction, humorous, and semi-fictional material are fictitious, and any resemblance to persons living or dead is purely coincidental. Reproduction in part or whole is prohibited. Printed in the U.S.A. Copyright 1959, by Fago Magazines, Inc.

MX POST BOOST VEHICLE









PRESENT PLANTS WILL HANDLE THE FOUR-TO-ONE EXPANSION

In this chart, military aircraft production and its components for the 1949–50 fiscal year, which ended almost the day the Korean war began, are shown in tan. An estimate of orders to be placed this year, based on the Armed Forces' request to Congress for $6,672 million, is shown in black and white. In the future, as in the past, about 50% of the money will go into air frames, 28% into engines, 19% into equipment, 3% into propellers.

The relative proportions among the types of planes will remain much the same, indicating that the Korean war has caused the Armed Forces to change their thinking only in terms of quantity. But in 1950–51, for only 3½ times the money spent in 1949–50, four times as many planes can be purchased. This saving will be made because the resurgent aircraft industry will now be able to organize operations on assembly lines.

This four-to-one expansion will be accomplished largely with existing facilities, in contrast to the expansion in 1941–41. There are now enough plants in service or in mothballs, and a fair supply of machine tools. The supply of labor is more than adequate except that there is a growing need for certain skilled workers—flight-line mechanics, sheet-metal workers, machine-tool rebuilders and radar technicians. As for unskilled labor, an official at the North American plant near Los Angeles last week looked in alarm at the swarm of workers lining up outside his employment office and remarked, "We won't need Rosie the Riveter for a long time yet."

CONTINUED ON NEXT PAGE

JANUARY 1951 35 CENTS

ANC

POPULAR MECHANICS

MAC

WRITTEN S

REG'D. TRADE MARK, GREAT BRITAIN, No. 410426

Beginning a

GREAT NEW FEATURE—

What Owners Really Think About Their Cars

In This Issue

THE NASH RAMBLER

See page 118

ENGINEERING...TO THE Nth POWER

Profile of the U. S. Navy's Convair-built P5Y . . . water-based, turboprop powered.

B-36F
World's largest warplane, jet-assisted, Convair-built for U.S. Air Force

To the Nth Power... literally! Guided missiles will be mass-produced by Convair in America's first exclusive missile plant, now being built in Pomona, California, for the Bureau of Ordnance, U. S. Navy

Aerodynamic engineering projects the *power* of an aircraft into *performance*... into fighter speed and agility, or bomber range and load, or passenger safety and comfort—or the "kill probability" of a guided missile.

The development may start with pure theory: a revolutionary airfoil, a military dream that takes form on a Convair engineer's board ...like the delta-wing which Convair was first to fly! Or the invention may be mothered by urgent necessity of Air Force strategists... like the B-36 and its successor, the all-jet swept-wing YB-60. The literal power involved may be jet, turboprop...or the four-times-sonic ramjets now being tested for guided missiles at the Convair-operated research center of Navy Ordnance. Always the goal is: the projection of power to achieve the *maximum degree* of performance. The maximum, the Nth degree of air power...*the Nth Power!*

That Convair moves so far ahead in so many fields is a tribute to the cooperating engineers of Convair, the armed forces and the airlines. But important, too, is the unique Convair organization, which integrates vast research and production facilities under far-sighted corporate management. Convair affords unusual scope for..."Engineering to the Nth Power."

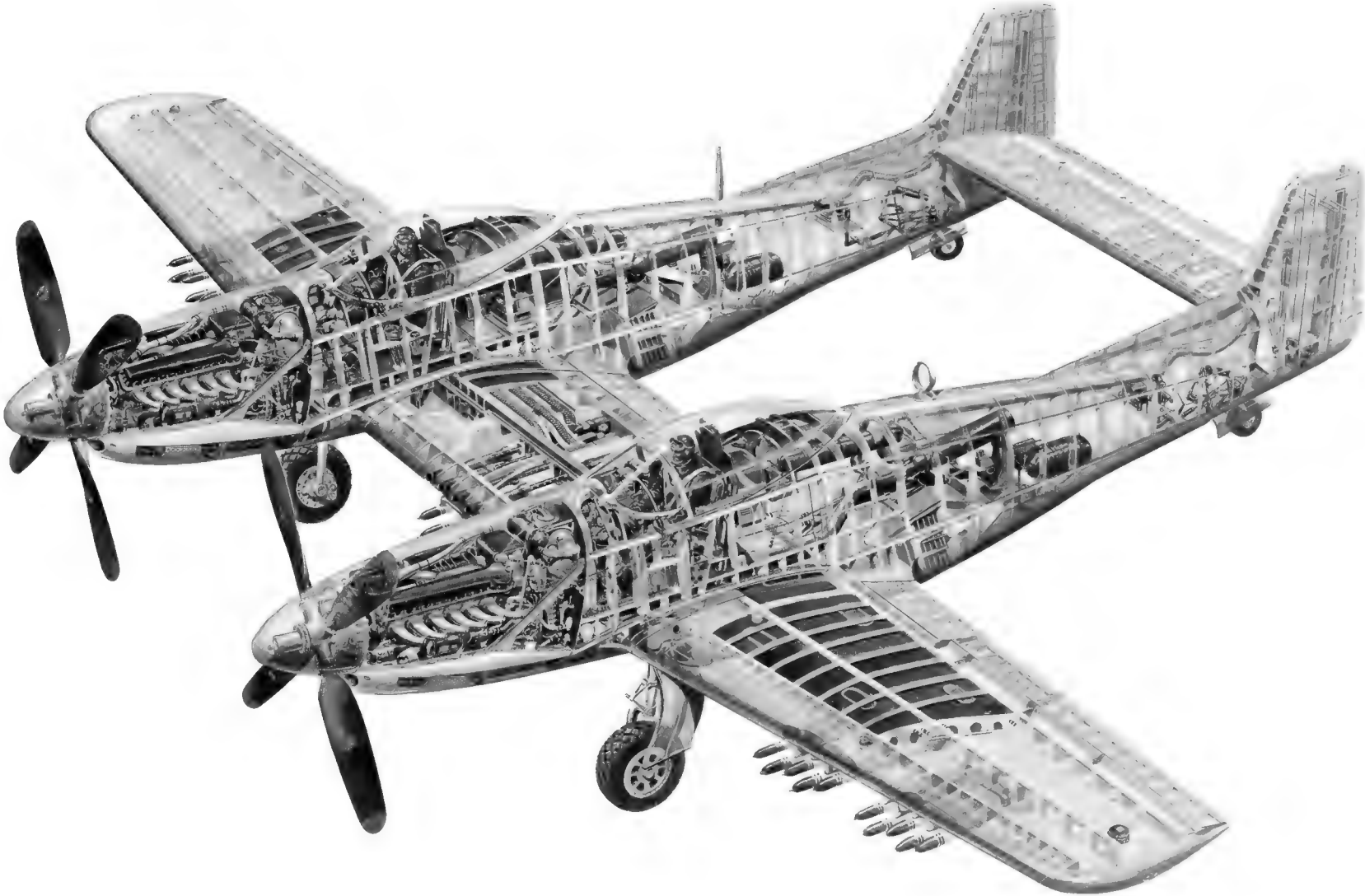
In the air it's **CONVAIR**

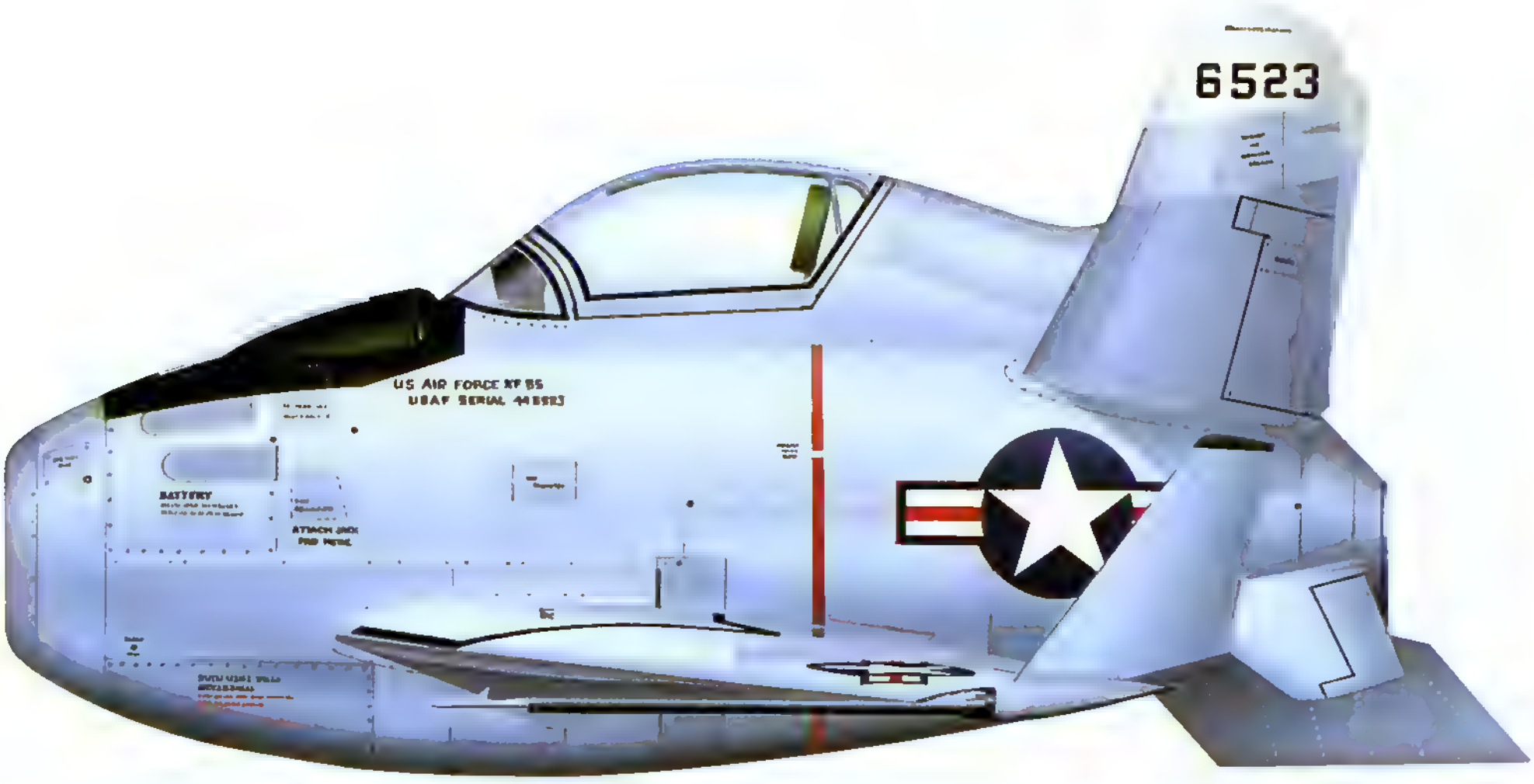
Convair-Liner
unequalled for safety, preferred by passengers and pilots . . . more used by more airlines than any postwar plane!

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

SAN DIEGO, CALIFORNIA · POMONA, CALIFORNIA · FORT WORTH, TEXAS

NAVY

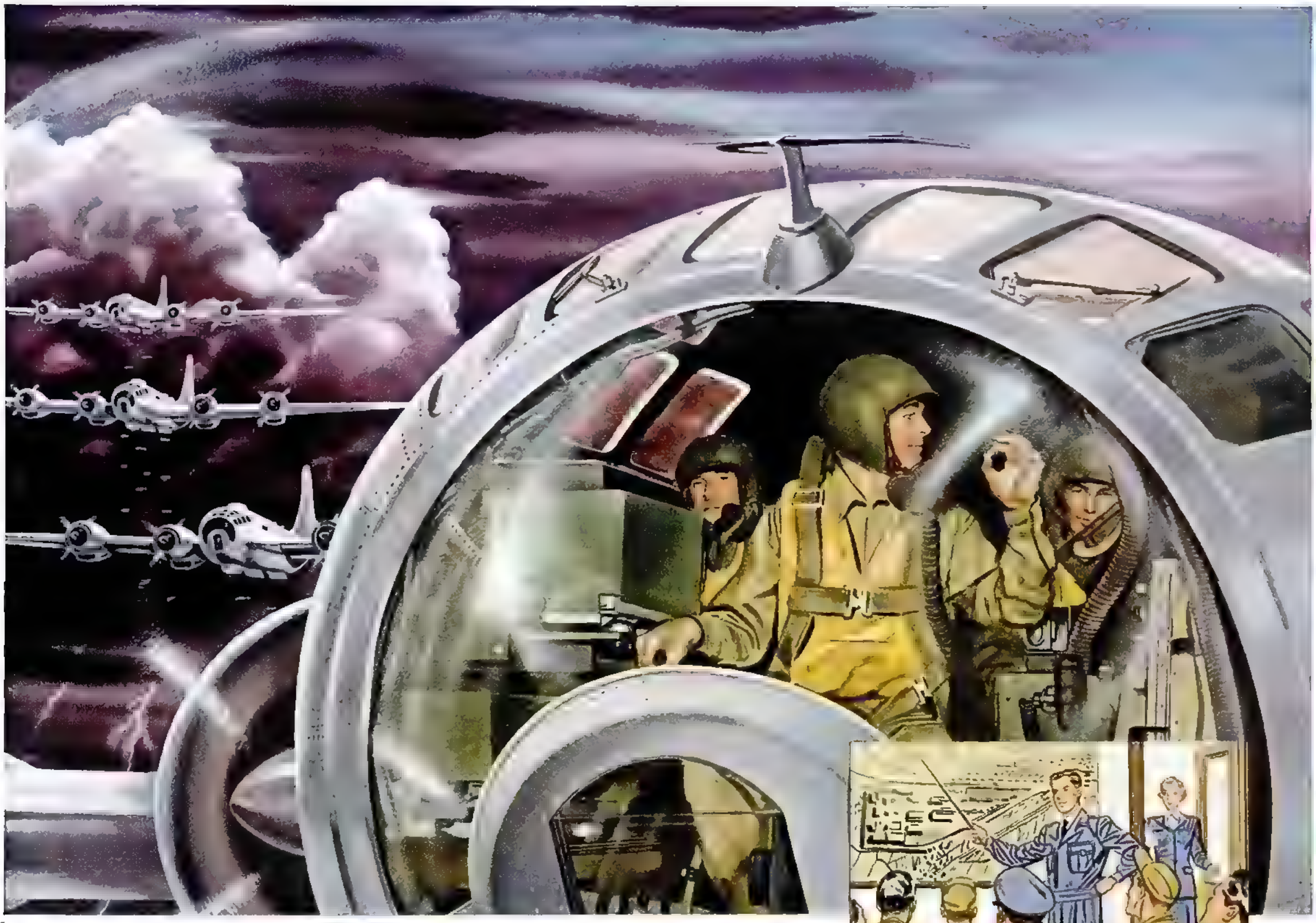


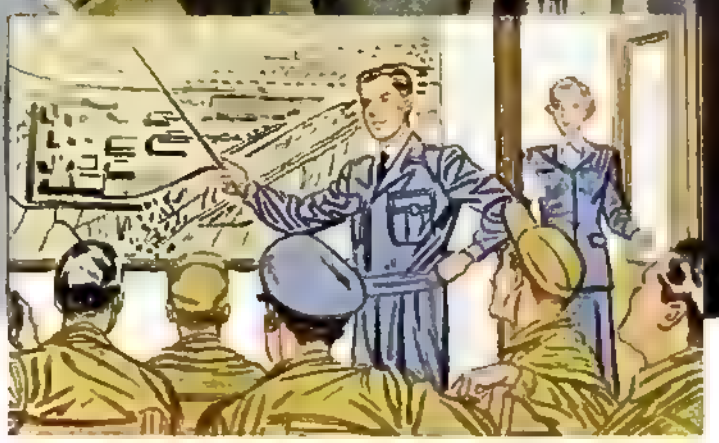

6523
US AIR FORCE XF-85
USAF SERIAL 46-523
BATTERY

30-35-PLN-25Y-10

30-35-PLK-254-7
ARDC
AFSWC

30-35-PLK-254-1
ARDC
AFSWC





MISSION BEGINS: Intelligence officers, gathering together target information, brief the B-50 officers and crew for the long-range mission which has been ordered.

Bombs Away!

That terse report from bombardier to aircraft commander on the B-50 intercom means: "Mission accomplished!" It marks the climax of a Strategic Air Command mission . . . pushed through by men with guts, despite enemy flak and fighters. It means another blow at the enemy's power to strike.

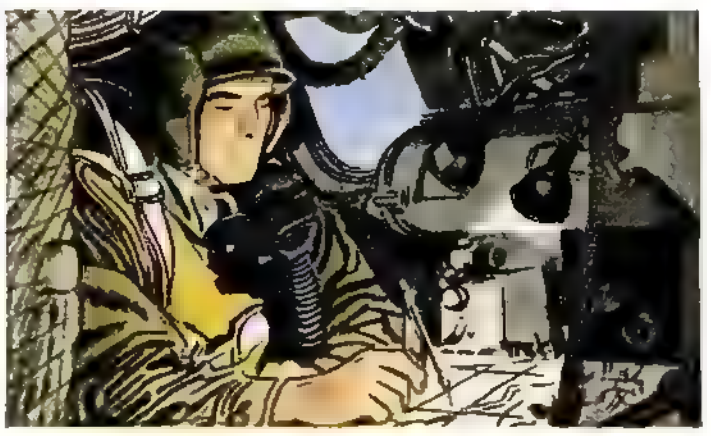
As the bombardier speaks, all across the formation bombs slant toward the earth, five weather-dark miles below, pulled forward by the 450-mile-an-hour speed of the giant aircraft. This is the moment of climax.

But back of that dramatic moment is a long history of planning and preparation. Top-notch design . . . top-flight training . . . and the raw courage of men who make your U. S. Air Force the best in the world.

Top Aviation Cadet training produced this B-50 team's Aircraft Commander and Pilot . . . taught Navigator, Bombardier and Radar Officer to work interchangeably in one another's jobs. Great Air Force schools trained the Airman crew . . . flight engineer, radio operator, central fire control man, gunner-electrician.

And, behind them all . . . the vast organization of your modern Air Force has worked toward that moment of climax. Radar, radio maintenance, weather, intelligence . . . all pointed for that report by the bombardier: "BOMBS AWAY!"

U. S.
AIR FORCE



ON COURSE: Navigator at work, pilot at controls, flight engineer checking the roar of four synchronized engines, 11-man crew alert . . . the flight to target starts.

AND ON GUARD: Gunners at their stations in waist and tail, coordinated by central fire control man at his master controls, stand guard against enemy fighter attack.

Wilco!

"Will comply . . . your order has been received and understood and will be carried out."

That's the answer the "Old Man" gets when he tells his communications chief to "wire it in." Then he knows he has another forward observation post . . . another pair of friendly eyes to assist him in the difficult operations ahead.

More than that, the answer "Wilco" exemplifies the spirit of the American combat soldier . . . reveals his determination to do the job however discouraging or tough that job may be . . . to the full limit of his abilities.

For he is the man who has put force of arms behind the stand a free world is making against aggression. He is putting his mark on the history books of the world.

And he knows so well that communications is the life blood of the combined effort . . . that much of his success or his failure depends upon the equipment supplied by the U. S. Army Signal Corps.

Today . . . more than ever before . . . he needs other young Americans serving with him who can also reply "Wilco" to the nation's needs and join with him in wearing the Mark of a Man, the uniform of the American combat soldier.

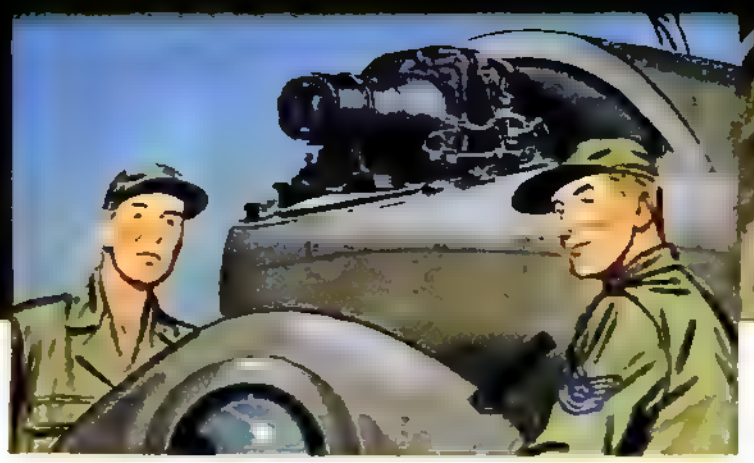
RECRUITING
U.S. ARMY
U.S. AIR FORCE

U. S. ARMY

VISIT YOUR NEAREST U. S. ARMY
AND U. S. AIR FORCE RECRUITING STATION

THE MARK OF A MAN!

The Combat Infantryman's badge, worn proudly over a soldier's left breast pocket, is the mark of a *man*.



EYES FRONT: Ground crews prepare to remove exposed film from nose cameras of an RB-45 just back from its "recon" mission, rush them off for developing.

Target for Tomorrow!

Photo-mapped today by the U.S. Air Force!

Swift, unarmed, these "recon" planes carry eleven probing "eyes" through fire and flak on a final camera run. Their mission: get enemy information and *get it back!*

Like the lone Indian scout of old, the reconnaissance officer of today guards the safety of the entire command in daring sorties into enemy territory. He brings back knowledge to assist commanders in deciding *where—when—how* to strike.

Sometimes his plane comes in low, through deadly enemy ground fire—sometimes high, up to 40,000 feet, a target for bristling enemy fighters. But, high or low, night or day, these "recon" missions are tough. And so are the men who fly them!

Only a few young men stand a chance of qualifying. And these the U. S. Air Force chooses carefully from the nation's best . . . trains them in the finest aviation schools under experienced officers.

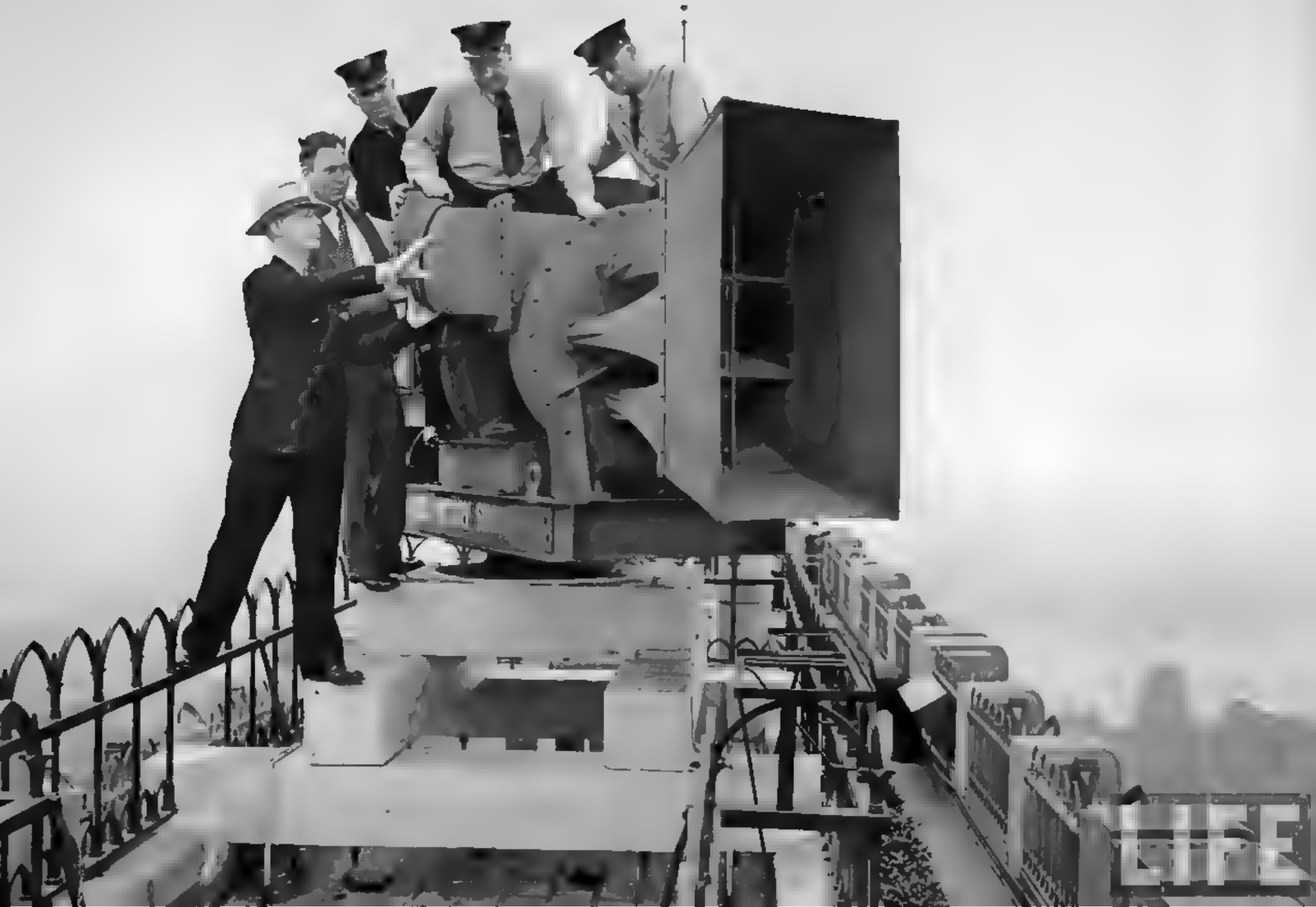
Selection of Airmen is just as important, for they must keep planes and equipment in tip-top shape. They are trained in Air Force technical schools for important assignments in 42 different career fields.

No wonder your U. S. Air Force is able to demand and receive, from Officers and Airmen alike, *superior performance at all times and under all conditions!*

U. S.
AIR FORCE

TOP VIEW: Skilled photo-interpreters of ground and air, using modern stereoscopic techniques, assess the pictures for detailed information on the enemy.

STRIKE: Bombers take over. Now they know *when*, *where* and *how* to strike a devastating blow at enemy installations—thanks to good reconnaissance!


LIFE

MARYLAND CIVIL DEFENSE AGENCY

EXECUTIVE DEPARTMENT

ANNAPOLIS, MARYLAND

TO MY FELLOW CITIZENS

While we may hope for the best, it is far wiser for us to prepare for the worst.

A strong Civil Defense organization is our best assurance that the terrible effects of atomic warfare, if it should come, would not leave us in a state of confusion and completely disrupt our industrial capacity.

Every citizen should take his place in the ranks of Civil Defense. You, your family and friends can band together with your neighbors into an effective Civil Defense organization.

If the atom bomb is dropped on our major cities, the neighboring communities will be called upon to render whatever all-out aid and support they can muster. It is of the utmost importance that we organize ourselves on the sound principles outlined in the Maryland Civil Defense Plan.

Civil Defense will be a part of our daily lives until the terrible threat of atomic warfare disappears from our strife-torn world. We must be prepared to face, with courage, whatever comes, born of the American determination to keep our liberties and pass them on to our children as they were passed on to us.

Sincerely,

Governor

TDMcK jr

Hon. Theodore R. McKeldin, Governor of Maryland.

Wm. G. Ewald, Chairman, Governor's Advisory Council for Civil Defense.

STATE OF MARYLAND
OFFICE OF
DIRECTOR CIVIL DEFENSE
BALTIMORE 5

July 15, 1952

To the People of Maryland:

The purpose of Civil Defense is to minimize the effect of a disaster whether resulting from natural causes or enemy attacks. It may be hard for you to realize that Civil Defense is really necessary, but if you examine the capabilities of nations such as the Soviet Union there can be no doubt but that we must be prepared to meet their onslaught and to reduce the effectiveness of their attacks.

A calm and well trained citizenry, fully aware of the magnitude of the disaster which may strike them, will be a great deterrent to any nation which might reconsider attacking this country.

No city or community alone will be capable of coping with the destruction caused by an atomic blast. We must therefore look to our neighbors for assistance and also be prepared to give them aid. The organization and plans to meet this tremendous task in the State of Maryland are sound. They are based on the maximum use of all the resources presently available to us, supplemented only by such supplies and equipment as are absolutely necessary to put our plans into operation.

In the final analysis, a successful Civil Defense Program depends on people. The task can only be accomplished if all of us recognize our responsibility to our families and our neighbors and put our shoulders to the wheel in an all-out effort to make our Civil Defense as realistic and as effective as our military preparations.

David G. McIntosh III
Director of Civil Defense

David G. McIntosh, III, Director, Maryland Civil Defense Agency.

ENEMY ATTACK... Here's What To Do *before, during and after*

Plan now what you and your family must do under the several possible emergency situations which may arise under the threat of or actual enemy attack. Know available shelters where you work and where you live.

"ALERT" SIREN SIGNAL

Steady, continuous sound of siren for 4 minutes means attack probable. Time before attack cannot be determined.

We recommend you go to the best shelter available in the immediate neighborhood.

If in doubt which signal sounded, follow instructions for TAKE COVER Siren Signal (below).

"TAKE COVER" SIREN SIGNAL

Warbling sound of siren, with rising and falling pitch for 3 minutes means enemy attack coming any minute.

Take cover at once in shelter, or inside room away from windows, or inside car in garage.

ATTACK WITHOUT WARNING

(No siren signal)

No siren sound. A brilliant white flash, the brightest you've ever seen, is your only warning. It may be from a guided missile. You have a few seconds before heavy shock wave arrives.

INDOORS, dive under nearest heavy piece of furniture or counter—if none is available, lie flat on floor, face down alongside wall out of line with window to avoid flying glass.

OUTDOORS, lie flat on ground face down, cover head and neck with arms. Immediately after shock wave passes get into best available cover for protection against possible fallout hazards.

DON'T TELEPHONE

All lines are needed for military and official use.

USE RADIO FOR INFORMATION

If electric power is off use portable battery set or automobile radio. Turn dial to local emergency broadcast radio station.

ACTION AFTER ATTACK

Don't rush outside right after a bombing and expose yourself to radiation. Remain in shelter. Keep the house closed as tightly as possible. If windows or doors have been broken nail blankets or other heavy material over them. Put a handkerchief over the nose and mouth to help prevent entry of dust. If you have been exposed in the open after the explosion it is advisable to change clothing and wash thoroughly all over including the hair. Listen on radio for instructions. Do not leave shelter until you are sure your area is safe. Contamination by fallout is possible without visible evidence of moisture or dust.

C-D Sirens are sounded only for enemy attack, never for other disasters such as earthquake, fire, tidal wave.

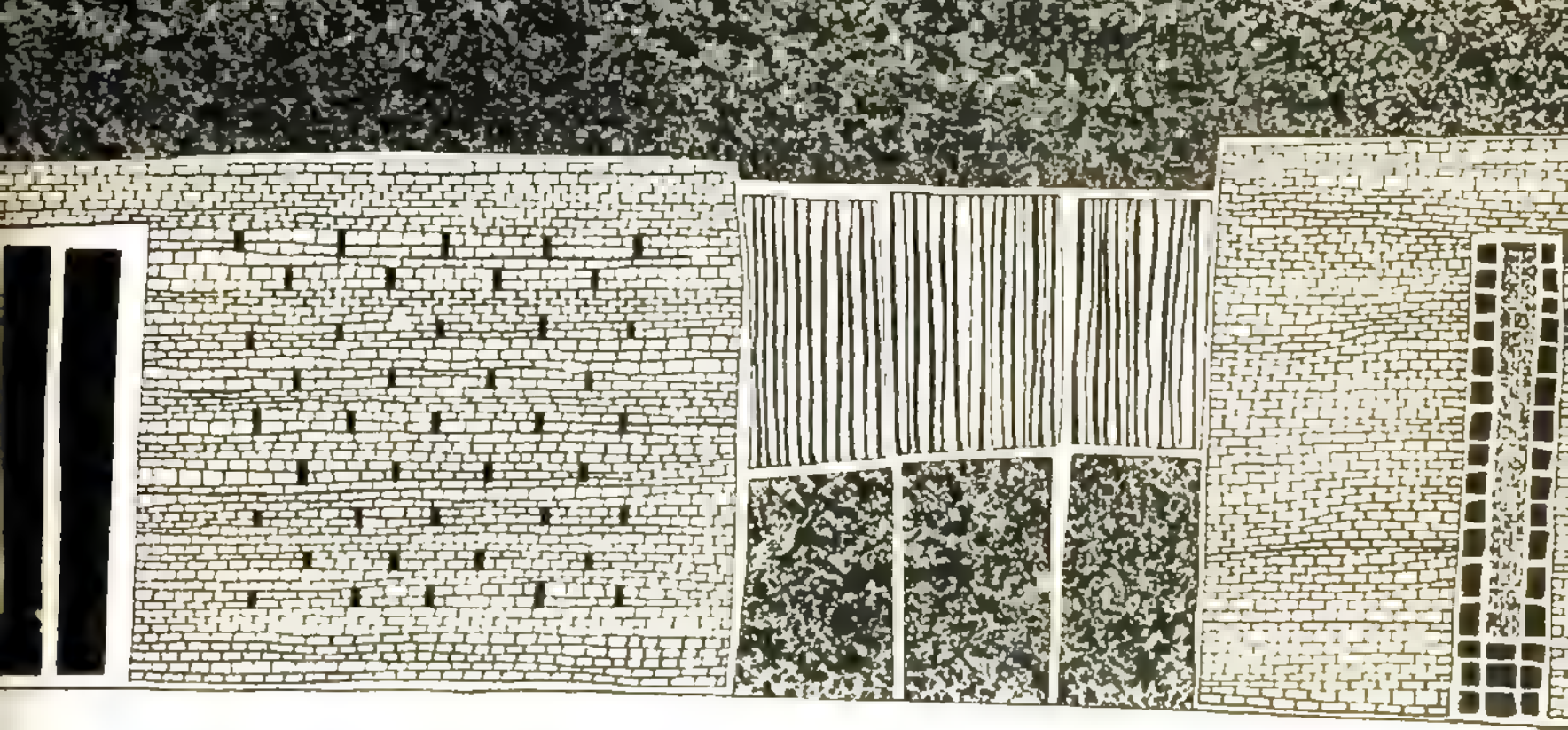
SAN FRANCISCO DISASTER CORPS

Hall of Justice, 850 Bryant Street, San Francisco 3, KLondike 3-1651

J. Wm. Conroy, Director

Sept. 1963

LIVE



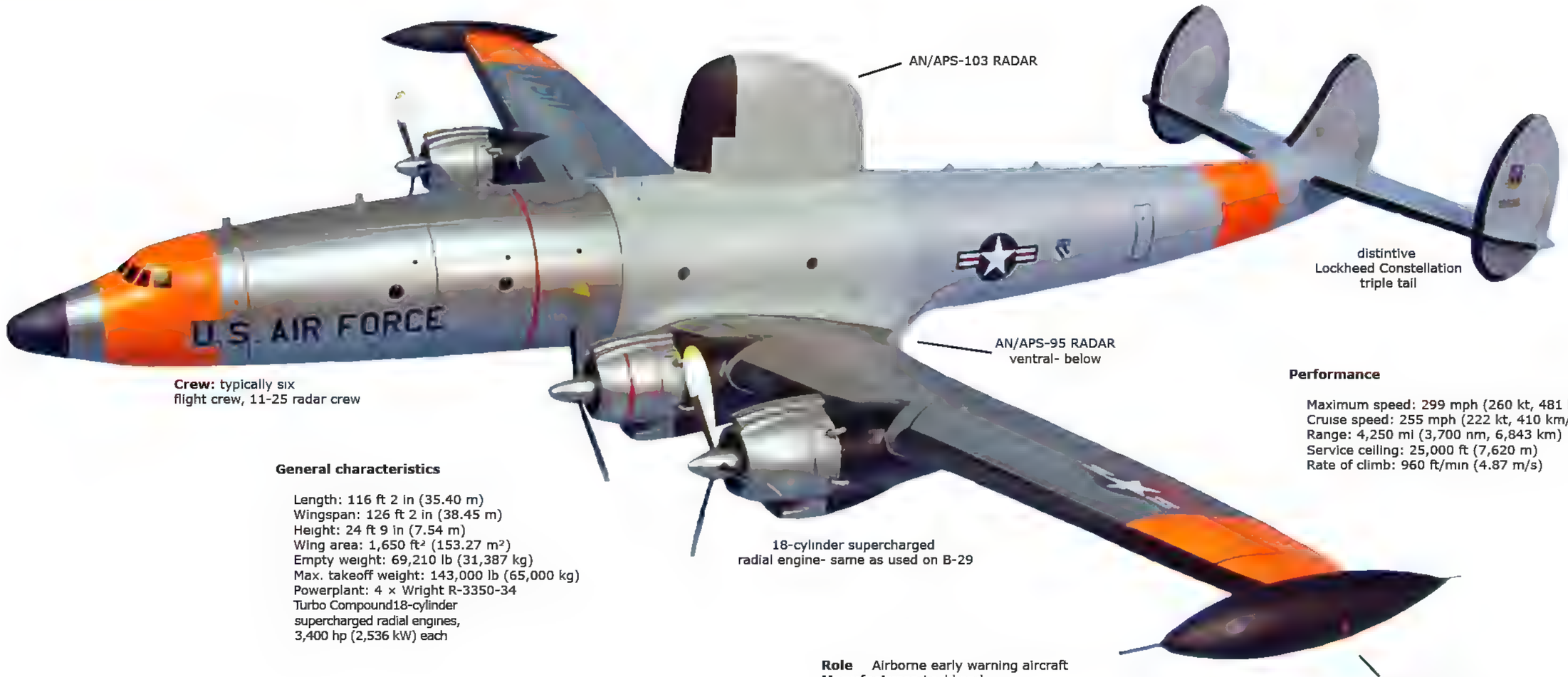
THREE PLANS FOR SURVIVAL IN A NUCLEAR ATTACK

SRI

Lockheed 'Warning Star' WV-2/EC-121D

The Lockheed EC-121 Warning Star was a United States Navy and United States Air Force airborne early warning radar surveillance aircraft. A military version of the Lockheed Constellation, it was designed to serve as an airborne early warning system to supplement the Distant Early Warning Line, using two large radomes, a vertical dome above and a horizontal one below the fuselage. EC-121s were also used for intelligence gathering (SIGINT).

1949 - 1982



Crew: typically six
flight crew, 11-25 radar crew

General characteristics

Length: 116 ft 2 in (35.40 m)
Wingspan: 126 ft 2 in (38.45 m)
Height: 24 ft 9 in (7.54 m)
Wing area: 1,650 ft² (153.27 m²)
Empty weight: 69,210 lb (31,387 kg)
Max. takeoff weight: 143,000 lb (65,000 kg)
Powerplant: 4 × Wright R-3350-34
Turbo Compound18-cylinder
supercharged radial engines,
3,400 hp (2,536 kW) each

Performance

Maximum speed: 299 mph (260 kt, 481 km/h)
Cruise speed: 255 mph (222 kt, 410 km/h)
Range: 4,250 mi (3,700 nm, 6,843 km)
Service ceiling: 25,000 ft (7,620 m)
Rate of climb: 960 ft/min (4.87 m/s)

Role Airborne early warning aircraft
Manufacturer Lockheed
First flight 9 June 1949
Introduction 1954
Retired 1982 (USN)
Primary Users United States Navy
United States Air Force
Produced 1953–1958
Number built 232
Developed from L-749 Constellation
L-1049 Super Constellation
C-121/R7V Constellation

KOREA PACK-HORSES—When the emergency call went out for supplies, the Military Air Transport Service and the commercial airlines of America teamed up to form the biggest airlift in history. Among the major types of aircraft used were Boeing Stratofreighters, Douglas Skymasters and Globemasters, and Fairchild Packets—all powered by Pratt & Whitney engines and equipped with Hamilton Standard propellers.

this
CD
HOME
is prepared for
emergency

AMERICA'S NEWEST WINGS FOR ATOMIC DEFENSE...
"DELTA WINGS," BORN AND BUILT BY CONVAIR'S

Engineering to the Nth power

WATER-BASED FIGHTER
Convair's twin-jet "Sea-Dart" (XF2Y-1) expands the air defense perimeter of fleets at sea and bases ashore

LAND-BASED INTERCEPTOR
From this experimental design comes Convair's supersonic F-102 to spearhead U.S. defenses

HERE'S A TRIANGLE WITH MORE THAN THREE POINTS

Convair was the first to engineer, build and *fly* the triangular shaped solution to the problem of human flight in the vicinity of the speed of sound... and beyond. Through the versatile skills of Convair engineering, the delta configuration has already given America its first land-based, supersonic interceptor... and the world's first water-based very-high-speed jet fighter. Adaptations of the delta to bomber and transport designs are now under way. Proof again, that Convair engineering achieves the maximum of air power... Engineering to the N*th* Power!

CONVAIR
SAN DIEGO & POMONA, CALIFORNIA
FORT WORTH & DAINGERFIELD, TEXAS

Jacket No: 369-741
Army Req No: 1825-H
GPO Order No: 53605
OCD Form 503A, Nov 68
January, 1970
POTTERSIGN, INC.

1. BEND SHEET TO EXPOSE EDGE OF LABEL
2. PEEL LABEL OFF BACKING PAPER
3. PRESS DOWN ONTO ANY SMOOTH CLEAN, DRY SURFACE

SOME RULES FOR SURVIVAL

The intended victims of BW can greatly increase their personal chances of survival by carrying out certain simple measures of precaution recommended by Civil Defense (*below*), by keeping as fit and healthy as possible and by learning to use new protective devices when they are distributed. Some of these devices are being developed behind the heavily guarded gates of Camp Detrick (*right*). Scientists there have been working on inexpensive, disposable face masks, a remarkable silver compound that may be able to purify large bodies of polluted water and photoelectric germ detectors that would give instantaneous results. The new type of filter shown on page 46 could probably be adapted as a permanent trap for water taps or air ducts. When perfected, these presumably would be mass-produced for civilian use. Meantime every American should acquaint himself with the safety measures that may protect him from BW.

A SPECIAL POLICE FORCE GUARDS CAMP DETRICK

BEFORE THE ATTACK

SCRUB FLOORS and clean all furniture and personal effects more often than usual to remove dirt in which biological agents would settle and multiply.

TAKE VACCINES and other specific precautions whenever recommended by a physician or health authorities to acquire immunity, bolster resistance.

REPORT ILLNESSES to physicians, even though symptoms do not seem alarming, to help authorities spot epidemics and prescribe proper treatment.

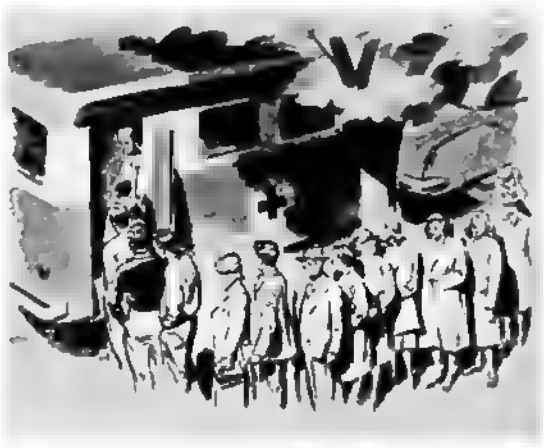
DURING THE ATTACK

CLOSE WINDOWS immediately if warning of any type of enemy attack is given, since BW may be used along with bombs, guided missiles, invasion.

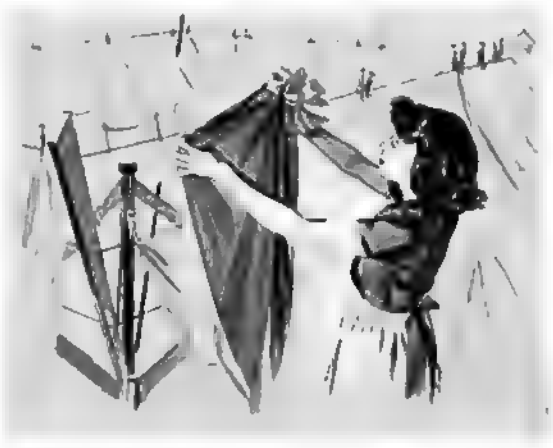
USE SEALED FOODS after washing off outside of container. Avoid eating while attack is in progress so food will not be polluted between jar and mouth.

BOIL ALL WATER for at least 10 minutes before drinking or using for any other purpose. This will kill most disease organisms, destroy botulinus toxin.

AFTER THE ATTACK



OBEY MEDICAL AUTHORITIES immediately when they ask for blood samples or offer specific therapy. But do not leave home until told it is safe.



STERILIZE CLOTHING with boiling water and soap to kill most microorganisms, then hang outside in sunshine. Personal cleanliness is also essential.

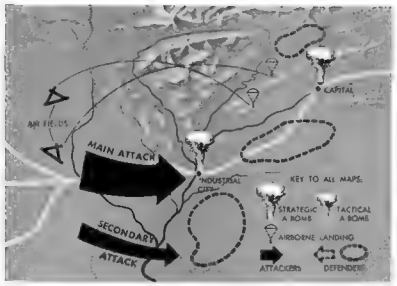
BURY CONTAMINATED FOOD and trash in order to eliminate likely breeding places for any remaining disease germs. Burning is equally effective.

A SUBMARINE OFF THE U.S. COAST, AS SHOWN IN THIS DRAWING BY MICHAEL RAMUS, COULD SPEW GERM-LADEN MIST FROM A TUBE TO SPREAD INFECTION IN A TARGET CITY

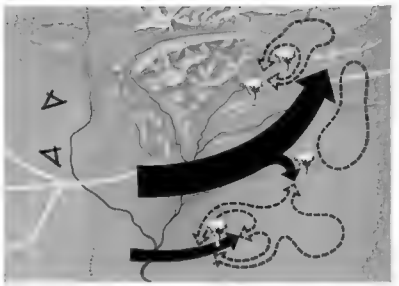
BIOLOGICAL WARFARE

It is a grim threat, but new microbe detectors offer hope

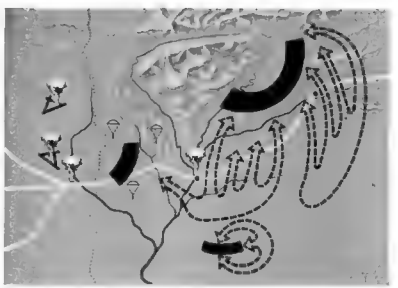
In the Middle Ages war parties sometimes dropped plague-ridden corpses into their enemies' village wells. Today this ancient mode of warfare is being refined to the point where it could be almost as devastating as atomic bombs. Biological warfare waged with numerous disease-bearing organisms now known to exist could bring sickness and death to thousands of Americans almost before they became aware an enemy was in attack. Invisible, odorless clouds of germ-laden droplets could be released unseen from hostile submarines, from aerosol bombs in the hands of saboteurs or from aircraft. Lethal mists would envelop target areas and infect soldiers, civilians, animals and crops with crippling afflictions. Deadly organisms could also be injected into city water mains and stores of food, or even into bulk stocks of drugs. The exact results of such attacks are hard to predict, since disease-producing organisms have never been deliberately spread with modern techniques and skill. But in any event the devastation would be far greater than that caused by any modern natural epidemic. To develop a defense against the threat, such diverse government agencies as the U.S. Army Chemical Corps and the U.S. Public Health Service are carrying on research. Already government scientists have made discoveries about the nature of the diseases likely to be used, about means of detecting an attack (*p. 47*) and about filters and chemicals that can purify polluted air and water. Some states also are partly prepared for BW. New York, for instance, has a stockpile of antibiotics in a secret cache. If a concerted effort is made, a workable defense against the threat can be devised. But biological warfare right now would find the U.S. unprepared.



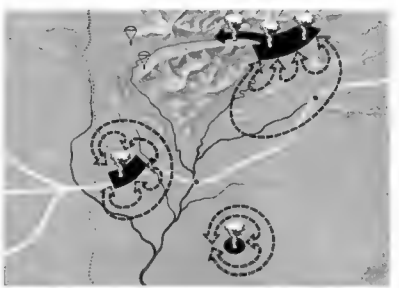
ATTACK in a hypothetical war is made by a massive tank-infantry army advancing along main road to defender's capital. His flanks are protected by armored columns and airborne landings while his big A-bombs crash into defender's cities.



CONTAINMENT of the attack is made by mobile, well-dispersed defenders hitting both flanks of main drive and using tactical A-bombs to help envelop or wipe out the airborne troops, an enemy bridgehead and the attacker's secondary drive.



COUNTERATTACK by defender comes against the flank of the main column as tactical A-bombs destroy attacker's airbases and hit bottlenecks in his now overextended supply lines. Defender's airborne troops drop in enemy's rear areas.



ANNIHILATION of the attacker takes place as his small units in the plains are destroyed. His main force becomes a profitable A-bomb target as it concentrates to defend itself and begin its long retreat through the narrow mountain passes.

CHANNELING ACTION SETS UP A VICTORY FOR FLUID DEFENSE

This summer, although the U.S. troops sweating out maneuvers in North Carolina's pine woods did not know it, umpires were exploding theoretical atomic missiles over their heads. Had the missiles been real, there would have been a scene of cataclysmic destruction such as that shown below. The massed armor, guns and infantry, deployed according to the dictates of our current tactical doctrine, would have been wiped out. It was painfully obvious that the book on tactics had to be rewritten.

The maps above illustrate some ways in which atomic weapons can be used to annihilate a powerful aggressor. Here the battle is between a solid, ponderous attacker and a defender with an amoeba-like fluidity. The atomic warhead, whether carried by bomb, guided missile or in an artillery shell, becomes completely effective only when used by an army that can fight while dispersed and can move by land or air with decisive speed.

In the theory of vertical envelopment—the transporting of whole armies by plane and helicopter (LIFE, May 28)—progress has been made toward such a force. That progress must now be stepped up and expanded into every field of the ground forces. It is not enough that entire armies be able to fly over rivers, mountains and even oceans. Once they arrive at the battlefield they must have complete tactical mobility. New tanks must be built that do not stop for deserts, snow or mud. Their supply trucks must follow them over the worst terrain and not be bound to highways. The infantryman, though he will still fight on his belly, must move to battle in armored carriers. Above such a force there must be planes and pilots capable of hitting pin-point close-in targets against which atomic weapons could not be used. Aerial resupply must be standard procedure. Radio communications must be perfected to give the commander sure control over his fast-moving, widely dispersed units. But though it is the generals who will have to plan and direct this new army, today's job is that of the scientists and engineers who must design the tank, truck and walkie-talkie that can keep pace with the atomic bomb and the guided missile.

A-BOMB EXPLODES ABOVE TROOPS concentrated by maneuvers shown in the maps at top. To produce maximum damage the bomb must be used immediately after the concentration has built up. Once strongly dug in, most of the soldiers would be safe from its major effects. Used at an early stage, however, and detonated 1,000 feet in the air, the tactical bomb would kill nearly everybody above ground within half a mile of the blast. Exposed troops would be killed either by flash burns, by rubble hurled across the earth or by radiation. Men in deep foxholes as close as 1,500 feet to the blast would be shielded by earth from these effects and could survive. Men in tanks, despite armor plating, would be killed at this distance. Air blasts would not leave radioactivity and rescue crews could come in. Against strongly dug-in troops an A-bomb would be detonated close to the ground for maximum blast effect. But its radius of destruction would be sharply curtailed.

COPYWRITTEN MATERIAL

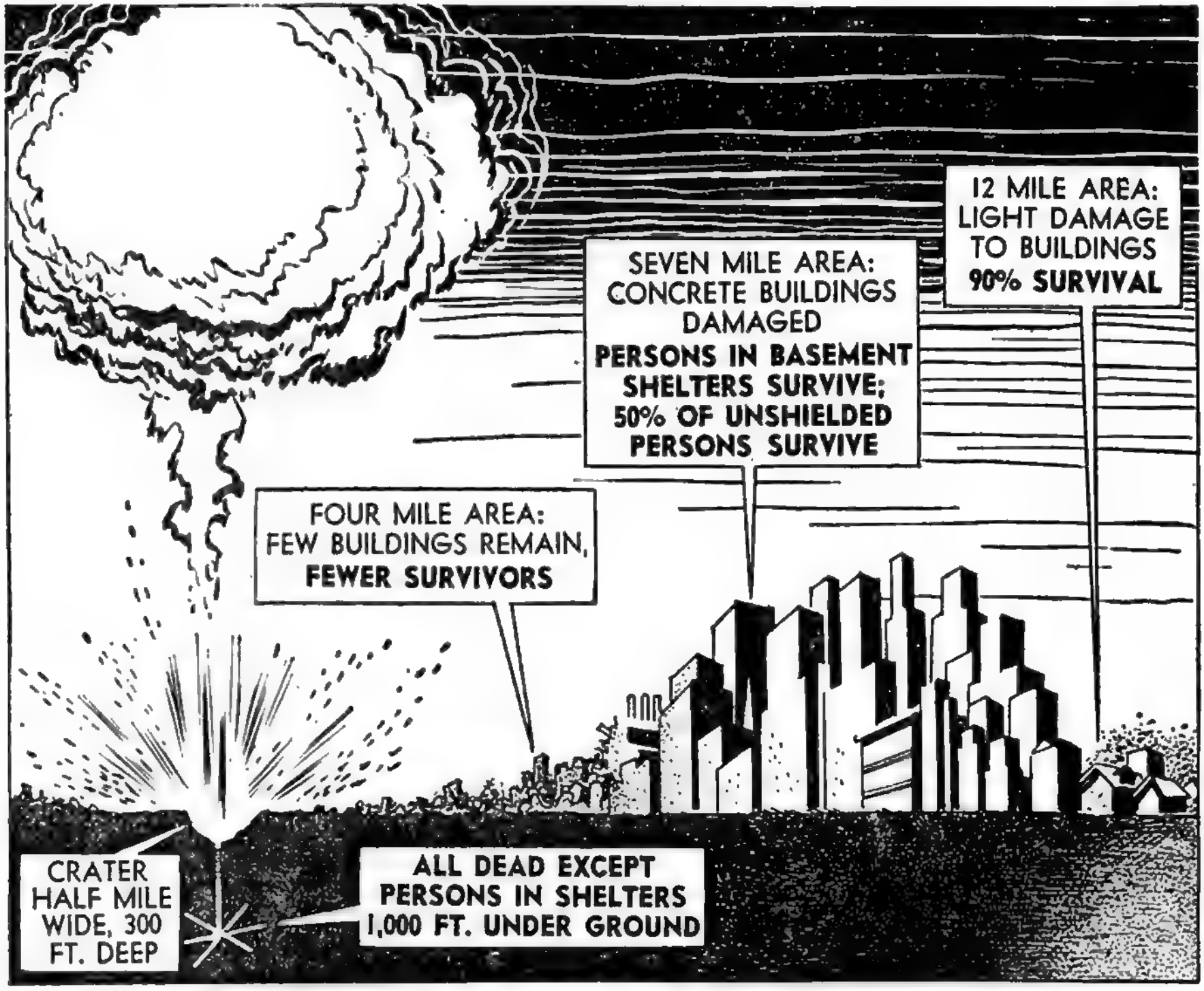
Your civil defense plans call for feeding thousands quickly and safely with DIXIE CUPS

"Hot soup and hot coffee can be real life savers in an emergency. And when you have to serve thousands in a hurry, nothing can beat clean, safe Dixie Cups. They're easy to handle . . . you can store millions of 'em in a small space . . . and Dixies give our volunteers precious time for more important work than dishwashing!"

"Dixie" is a registered trade mark of the Dixie Cup Company

Dixie

What Nuclear Bomb Would Do to Chicago



Sketch shows how death and destruction caused by a nuclear bomb dropped at State and Madison streets would diminish at increasing distances from the blast site. Adequate shelters would save many lives.

2
The team comes out of its huddle and here's the play. Tankmen such as those of the "Hell-on-Wheels" 2nd Armored Division at Camp Hood soon realize the value of teamwork and split-second timing in all phases of Army life.
RECRUITING
U.S. ARMY
U.S. AIR FORCE

Operation Peace

A quick look at life in today's streamlined Army Divisions. Meet the skilled technicians and soldiers who make an important career out of professional service to their country.

1.

Takes a keen eye and quick reflexes to hunt wild boar! These Regulars in the top-notch 1st Infantry Division in Germany enjoy this thrilling sport, because their training and physical conditioning keep them in A-1 shape.

2.

Great opportunities to develop executive and managerial ability make an Army NCO's career worth while. Here, at Fort Jackson, home of the famous 5th Infantry Division, Regular Army men become skilled in planning and leadership.

3.

Lessons in sportsmanship come naturally from our soldiers—help unofficially in the Army's task of bringing democracy to occupied lands. This soldier of the 24th Infantry Division in Japan takes pride in his after-hours role.

4.

Complex equipment means our modern divisions must have specialists—in communications, fire-power, many other fields. Here at Ft. Dix, home of the 9th Infantry Division, telephone fieldmen study a complicated switchboard.

5.

Leadership, initiative, quick thinking are recognized and rewarded in the Army. The non-commissioned officer of the 11th Airborne Division directs his men as they set up mortars and machine guns after a drop through space.

6.

Your soldiers work hard . . . but also have time for play. Dances like this one, attended by enlisted men of the 3rd Infantry Division, are common at all Army camps and posts. Army athletic teams also offer recreational opportunities.

IS THIS
TOMORROW
AMERICA UNDER COMMUNISM!

Going Places

AS A U. S. AIR FORCE OFFICER !

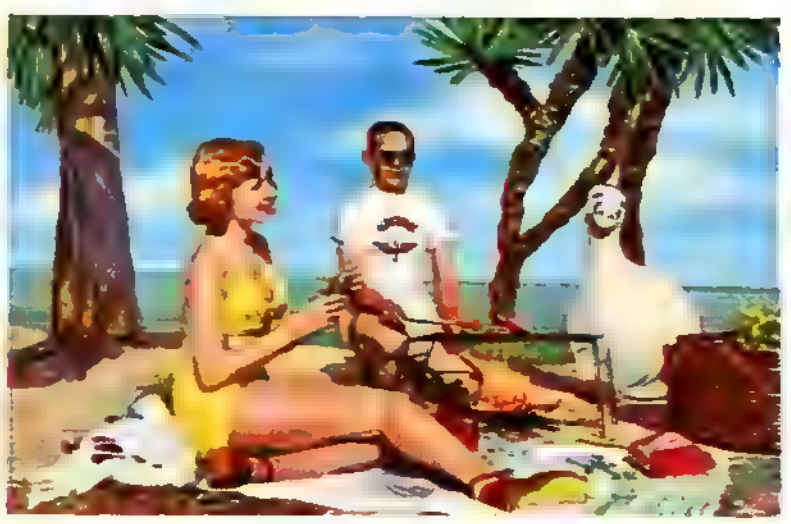
Here is a brief picture of one of the greatest opportunities available to young men today . . . a career as an officer in the U. S. Air Force. The finest possible training and experience await you in a field which offers an unlimited future!

AN EAGLET! When you complete your course as an Aviation Cadet, you have received training valued at $35,000 . . . automatically become a second lieutenant with a rating of pilot in the U. S. Air Force! Starting pay is $336 a month . . . with even greater opportunities ahead!

WANT TO TRAVEL? If you're assigned to the B-29s, your dreams will more than come true! The U. S. to Japan is just a training flight. Strange countries, new sights, adventure are yours in abundance . . . and with them, flying experience that can't be matched anywhere!

FIGHTERS READY TO SCRAMBLE! If you're assigned to a jet fighter unit, you'll fly sleek F-80 Shooting Stars, F-84 Thunderjets or the new speed record holder, the F-86! You'll be one of the pioneers in a new kind of flying . . learning the thrill of perfect teamwork in the air!

CATS-EYE! Our airborne night fighters have mechanical eyes, which see through thickest fog and darkness. And with your own eyes, you'll enjoy sights unknown to earthlings . . . the breath-taking beauty of the moonlight above the clouds. No other sight quite matches it!



ALL THIS . . . AND A VACATION, TOO! Your work is interesting . . . thrilling . . . but you also get thirty days' leave *with* pay every year! Plenty of time to loll in the sun—take a trip to the mountains—or enjoy a long, leisurely visit with your family or friends. A *real* vacation!

EXPERIENCE with the world's largest air line may be yours. For MATS, the Military Air Transport Service, operates scheduled flights on routes which girdle the globe. Casablanca, Calcutta, Shanghai, Manila are casual names to pilots assigned to this service.

UNEQUALLED "AIR FREIGHT" EXPERIENCE may also be yours! Hundreds of thousands of tons of air freight are now being moved thousands of miles by big, new cargo planes. New methods are constantly being developed. Another field of aviation with great promise for those who learn it now!

A YOUNG MAN'S ORGANIZATION . . . with great opportunities for "going places" fast. The average age of top Air Force commanders is only 47. Two of them are only 41! In the U. S. Air Force able men move up fast! It offers an interesting, worthwhile future to those who can qualify!

Only the best can be Aviation Cadets

If you can qualify, a valuable aviation education, a brilliant flying career, a thrilling future await you. Inquire at your nearest Air Force Base or U. S. Army and U. S. Air Force Recruiting Station about the possibility of becoming an Aviation Cadet!

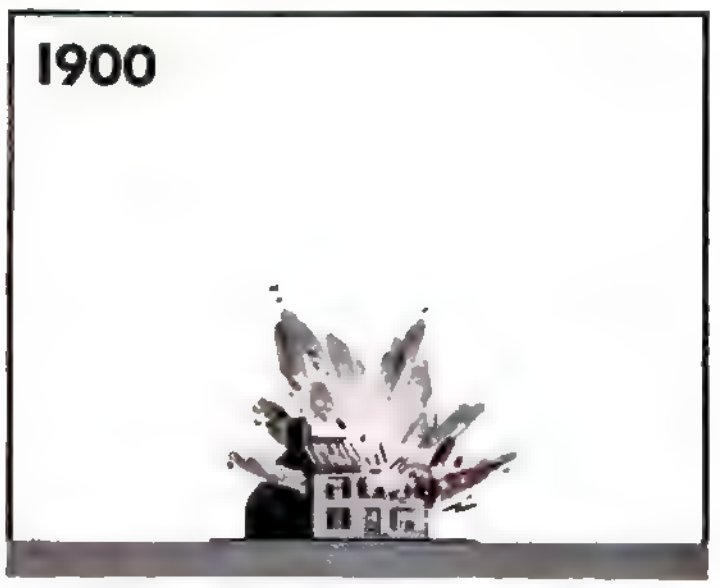
WIN YOUR WINGS

U. S. AIR FORCE

For single or married men with two years of college (or who can pass an equivalent examination). Between ages of 20 and 26½. U. S. Citizen. High physical and moral qualifications.

U. S. ARMY AND U. S. AIR FORCE RECRUITING SERVICE

DESTRUCTIVE POWER in the 20th Century has kept pace with the sudden increase in the speed of travel. For centuries the only weapons available were clubs, stones, spears, knives and arrows, which could seldom kill more than one person at a time. The curve of destructive power remained almost horizontal. With the first military uses of gunpowder in the 14th Century, the curve began its deadly climb. The advance was gradual because efficient artillery was only slowly developed. But in the 19th Century highly specialized weapons like shrapnel and armor-piercing shells suddenly raised man's power to destroy. Since 1900 the explosive force of military weapons has increased four million times. The sharp rise in their deadliness has become a tremendous vertical surge with the development of the atomic bomb, which for sheer destructive power is in a class by itself. In the field of weapons, as in the field of speed, even greater advances can be expected. It is theoretically possible to make new types of atomic bombs hundreds of times more powerful than the one dropped on Hiroshima.



BLACK POWDER SHELL from 14-inch mortar destroyed inside of a frame house but left walls standing.

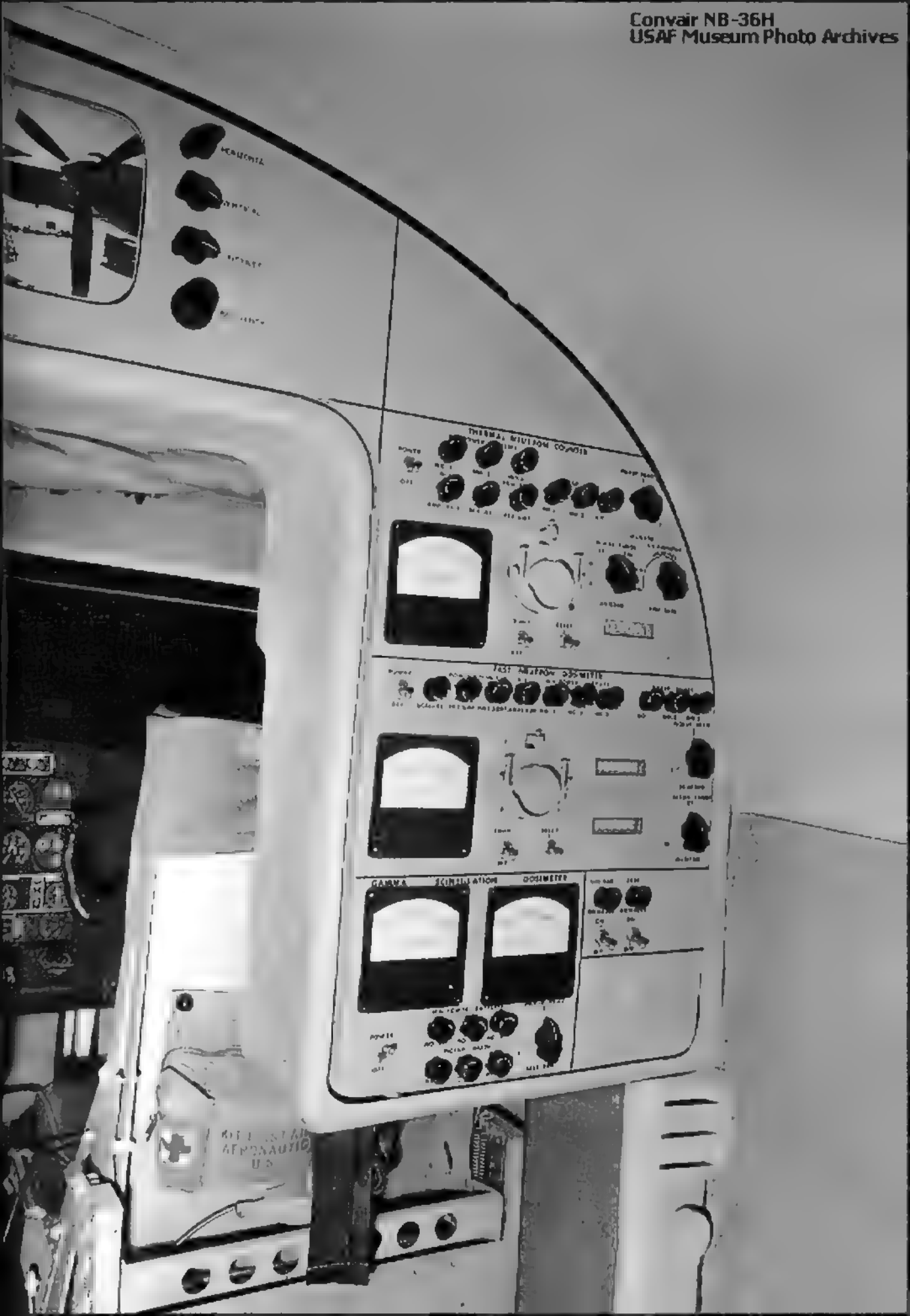
FRENCH BOMBS used in World War I demolished a whole house and severely damaged nearby buildings.

BRITISH BLOCKBUSTER, nicknamed the Grand Slam, smashed most of a city block. Buildings which were not leveled by the blast were riddled by bomb fragments.

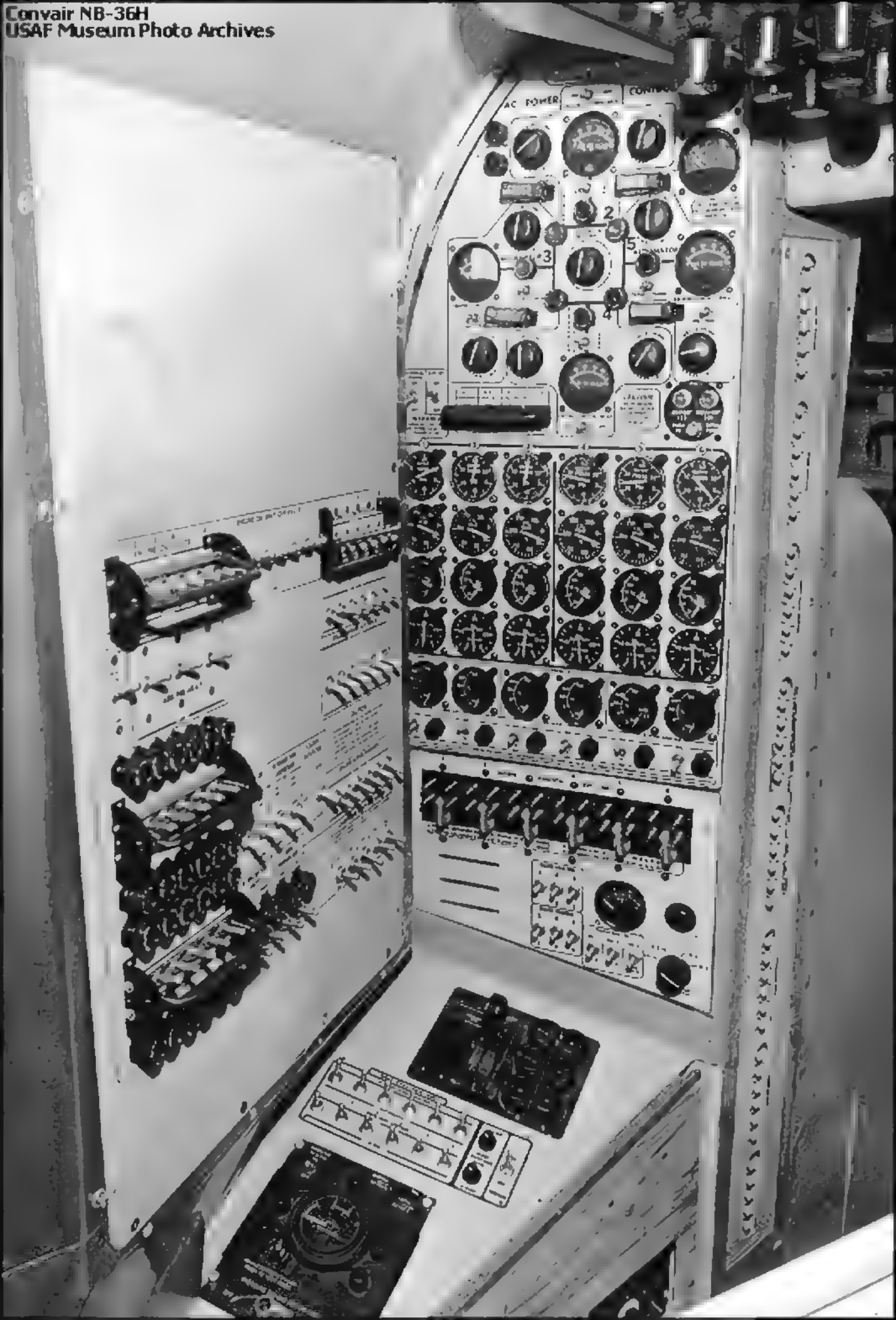
U.S. ATOMIC BOMB dropped on Hiroshima completely flattened all but a few reinforced concrete buildings within one mile of the point where the bomb exploded. The blast inflicted heavy casualties within two miles of the explosion, and the heat flash started fires almost three miles away. The dotted line indicates bomb's shock wave.

COPYWRITTEN MATERIAL

CONTINUED ON NEXT PAGE


Convair NB-36H
USAF Museum Photo Archives
THERMAL RADIATION COUNTER
GAMMA
SCINTILLATION
DOSIMETER

Convair NB-36H
USAF Museum Photo Archives



onvair
B-36H

Figure 52.—Shelter supplies.

CELLAR makes a fairly safe shelter where a family can wait out the danger period in relative comfort. Much safer would be special shelter with lead-lined door leading from the basement and with several feet of earth packed overhead.

XR

FIGURE 15.—Man being bombarded by "invisible" rays.

TWENTY-FIVE CENTS

WEAPONS & DIPLOMACY
Cuba, Canada and Europe

TIME

THE [illegible]INE

SECRETARY
McNAMARA

VOL. [illegible] NO. 7

TWENTY-FIVE CENTS MAY 11, 1962

U.S. NUCLEAR TESTING
The Shot Heard Round the World

TIME

THE WEEKLY NEWSMAGAZINE

TEST DIRECTOR
WILLIAM OGLE

$7.50 A YEAR

TIME

THE WEEKLY NEWSMAGAZINE

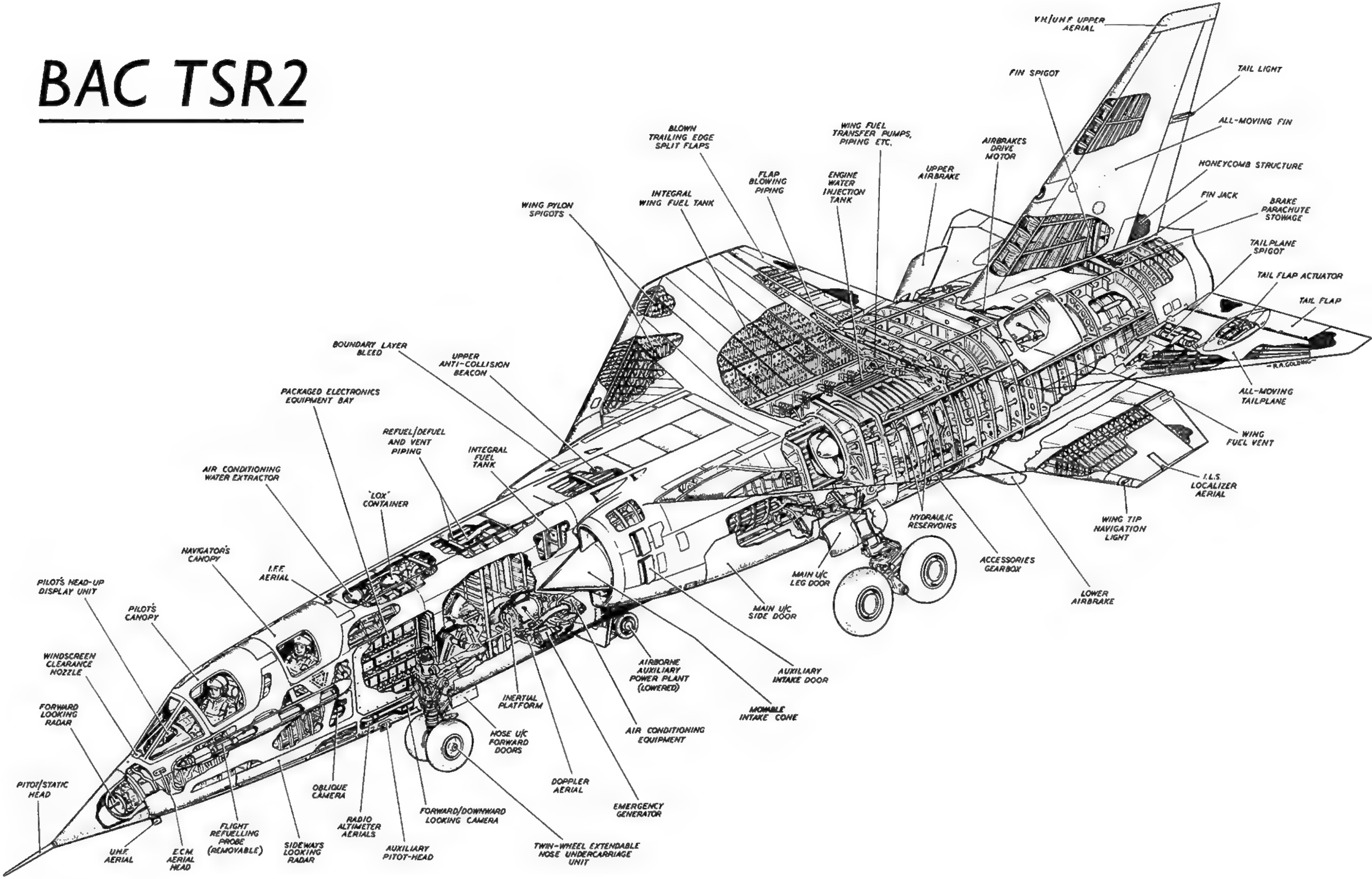
GENERAL MARK CLARK

The Korean quest'on: win, lose or draw?

XR

An artist's conception of how a 50-kiloton bomb would smash lower Manhattan. The single bomb rips apart the Brooklyn Bridge and leaves in its wake some 823,000 dead and more than a million casualties. A minimum of 140 strikes, expected in a mass attack, would bring the death toll throughout the nation to more than 20,000,000.

BAC TSR2


VHF/UHF UPPER AERIAL
FIN SPIGOT
TAIL LIGHT
ALL-MOVING FIN
HONEYCOMB STRUCTURE
FIN JACK
BRAKE PARACHUTE STOWAGE
TAILPLANE SPIGOT
TAIL FLAP ACTUATOR
TAIL FLAP
ALL-MOVING TAILPLANE
WING FUEL VENT
I.L.S. LOCALIZER AERIAL
WING TIP NAVIGATION LIGHT
LOWER AIRBRAKE
ACCESSORIES GEARBOX
HYDRAULIC RESERVOIRS
MAIN U/C LEG DOOR
MAIN U/C SIDE DOOR
AUXILIARY INTAKE DOOR
MOVABLE INTAKE CONE
AIRBORNE AUXILIARY POWER PLANT (LOWERED)
AIR CONDITIONING EQUIPMENT
EMERGENCY GENERATOR
DOPPLER AERIAL
TWIN-WHEEL EXTENDABLE NOSE UNDERCARRIAGE UNIT
NOSE U/C FORWARD DOORS
INERTIAL PLATFORM
FORWARD/DOWNWARD LOOKING CAMERA
AUXILIARY PITOT-HEAD
RADIO ALTIMETER AERIALS
OBLIQUE CAMERA
SIDEWAYS LOOKING RADAR
FLIGHT REFUELLING PROBE (REMOVABLE)
E.C.M. AERIAL HEAD
UHF AERIAL
PITOT/STATIC HEAD
FORWARD LOOKING RADAR
WINDSCREEN CLEARANCE NOZZLE
PILOT'S CANOPY
PILOT'S HEAD-UP DISPLAY UNIT
NAVIGATOR'S CANOPY
I.F.F. AERIAL
AIR CONDITIONING WATER EXTRACTOR
PACKAGED ELECTRONICS EQUIPMENT BAY
BOUNDARY LAYER BLEED
UPPER ANTI-COLLISION BEACON
REFUEL/DEFUEL AND VENT PIPING
INTEGRAL FUEL TANK
"LOX" CONTAINER
WING PYLON SPIGOTS
INTEGRAL WING FUEL TANK
BLOWN TRAILING EDGE SPLIT FLAPS
FLAP BLOWING PIPING
ENGINE WATER INJECTION TANK
WING FUEL TRANSFER PUMPS, PIPING ETC.
UPPER AIRBRAKE
AIRBRAKES DRIVE MOTOR

EAGLE 28 *February* 1959

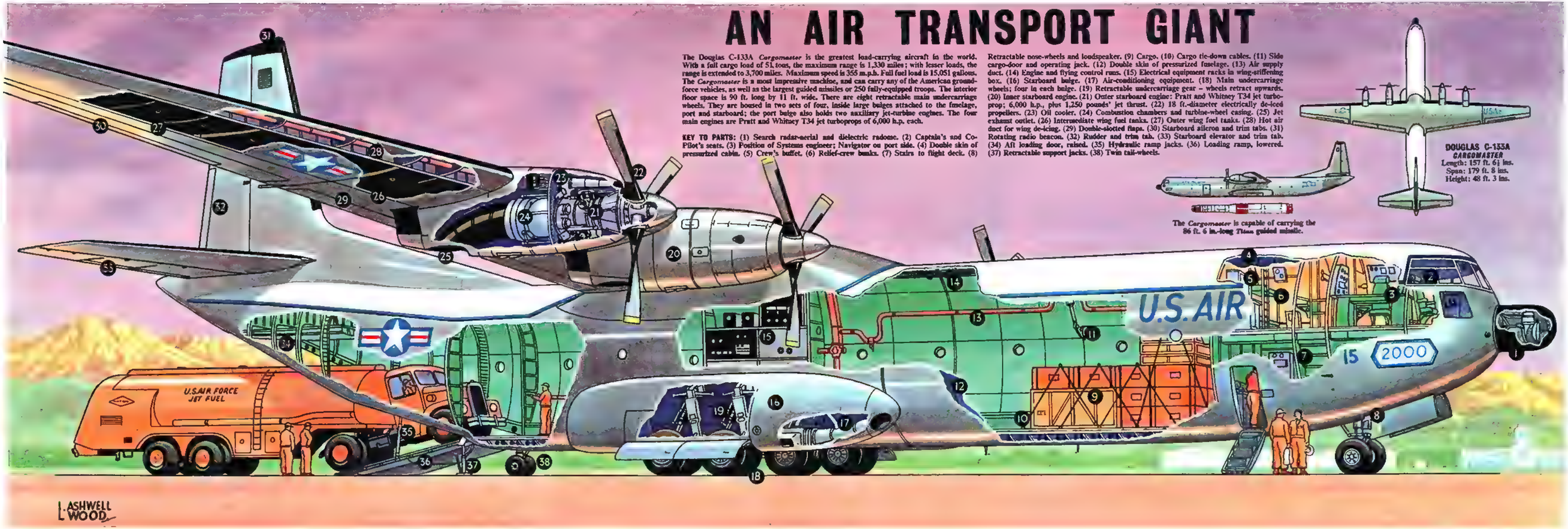
AN AIR TRANSPORT GIANT

The Douglas C-133A *Cargomaster* is the greatest load-carrying aircraft in the world. With a full cargo load of 51 tons, the maximum range is 1,330 miles; with lesser loads, the range is extended to 3,700 miles. Maximum speed is 355 m.p.h. Full fuel load is 15,051 gallons. The *Cargomaster* is a most impressive machine, and can carry any of the American ground-force vehicles, as well as the largest guided missiles or 250 fully-equipped troops. The interior floor space is 90 ft. long by 11 ft. wide. There are eight retractable main undercarriage wheels. They are housed in two sets of four, inside large bulges attached to the fuselage, port and starboard; the port bulge also holds two auxiliary jet-turbine engines. The four main engines are Pratt and Whitney T34 jet turboprops of 6,000 h.p. each.

KEY TO PARTS: (1) Search radar-aerial and dielectric radome. (2) Captain's and Co-Pilot's seats. (3) Position of Systems engineer; Navigator on port side. (4) Double skin of pressurized cabin. (5) Crew's buffet. (6) Relief-crew bunks. (7) Stairs to flight deck. (8) Retractable nose-wheels and loudspeaker. (9) Cargo. (10) Cargo tie-down cables. (11) Side cargo-door and operating jack. (12) Double skin of pressurized fuselage. (13) Air supply duct. (14) Engine and flying control runs. (15) Electrical equipment racks in wing-stiffening box. (16) Starboard bulge. (17) Air-conditioning equipment. (18) Main undercarriage wheels; four in each bulge. (19) Retractable undercarriage gear – wheels retract upwards. (20) Inner starboard engine. (21) Outer starboard engine: Pratt and Whitney T34 jet turbo-prop; 6,000 h.p., plus 1,250 pounds' jet thrust. (22) 18 ft.-diameter electrically de-iced propellers. (23) Oil cooler. (24) Combustion chambers and turbine-wheel casing. (25) Jet exhaust outlet. (26) Intermediate wing fuel tanks. (27) Outer wing fuel tanks. (28) Hot air duct for wing de-icing. (29) Double-slotted flaps. (30) Starboard aileron and trim tabs. (31) Rotating radio beacon. (32) Rudder and trim tab. (33) Starboard elevator and trim tab. (34) Aft loading door, raised. (35) Hydraulic ramp jacks. (36) Loading ramp, lowered. (37) Retractable support jacks. (38) Twin tail-wheels.

DOUGLAS C-133A CARGOMASTER
Length: 157 ft. 6½ ins.
Span: 179 ft. 8 ins.
Height: 48 ft. 3 ins.

The *Cargomaster* is capable of carrying the 86 ft. 6 in.-long *Titan* guided missile.



IT'S TRUE THAT THE ATOMIC BOMB IS ONE OF THE MOST DESTRUCTIVE EXPLOSIVES DEVELOPED ... BUT IT HAS ITS LIMITATIONS! AND THE GREATEST DEFENSE AGAINST IT IS UNDERSTANDING ITS CAPABILITIES AND LIMITATIONS!

DON'T BELIEVE THE PEOPLE WHO GO AROUND WAILING THAT CIVILIZATION WILL BE WIPED OUT,,,THAT THE EARTH WILL BE ERASED FROM THE UNIVERSE WHEN AND IF AN ATOMIC WAR COMES,,,

WHEN THE CHINESE INVENTED GUNPOWDER IN THE MIDDLE OF THE 9TH CENTURY, THERE WERE THOSE WHO ALSO SCREAMED,,

AND WHEN THE FIRST CANNONS WERE USED IN EUROPE IN 1327, IN THE WAR BETWEEN ENGLAND AND THE SCOTS, AGAIN IT WAS BELIEVED TO BE THE WEAPON THAT MEANT THE END OF THE WORLD.

RUN! FLEE! WE ARE ALL DOOMED! THE ENGLISH DOGS HAVE A WEAPON THAT THUNDERS LIKE HADES AND SHOOTS PIECES OF IRON!

*THIS MEANS THE END OF EVERYTHING!

AND THEN THERE WERE THOSE WHO PREDICTED THE END OF THE EARTH IN WORLD WAR ONE, WHEN TANKS RUMBLED ACROSS THE BATTLEFIELDS OF FRANCE FOR THE FIRST TIME,,

AND THE SAME GLOOMY FUTURE FOR THE WORLD WAS PREDICTED WHEN HITLER STARTED USING V-1 AND V-2 ROCKETS AGAINST ENGLAND,,,

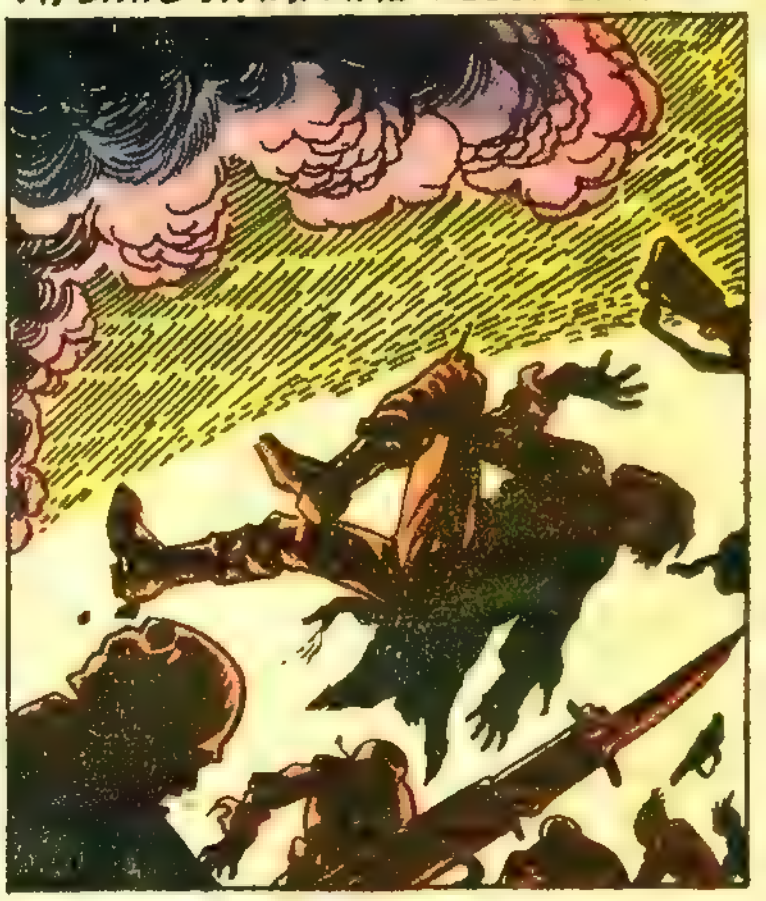
BUT THE WORLD IS STILL HERE! MAYBE IT'S DENTED AND BRUISED,,, BUT IT'S STILL SPINNING!

A KOREAN WAR VETERAN, PRIVATE FIRST CLASS PENNY P. PENNINGTON, REVEALS LITTLE KNOWN FACTS ABOUT...

ATOMIC WARFARE

YOU'VE ALL SEEN PICTURES OF THE ATOMIC BOMB MUSHROOM, AND LIKE MANY PEOPLE, WHEN YOU SAW IT YOU PROBABLY THOUGHT OF... THE END OF THE WORLD!

AND WHEN YOU SAW PHOTOS AND MOVIES OF *HIROSHIMA* AND *NAGASAKI*, YOU THOUGHT THE SAME THING, AND YOUR IMAGINATION PROBABLY FLASHED PICTURES IN YOUR MIND OF WHAT *ATOMIC WARFARE* WOULD BE LIKE!



BUT THE ATOMIC BOMB *CAN'T* DESTROY THE WORLD! MILITARY TESTS ON THE DESERTS OF THE WEST HAVE PROVEN THAT AN ATOMIC EXPLOSION *CAN'T* EVEN DESTROY A DIVISION AND ALL ITS EQUIPMENT!

UNITED STATES AIR FORCE
Convair
Crusader
15712

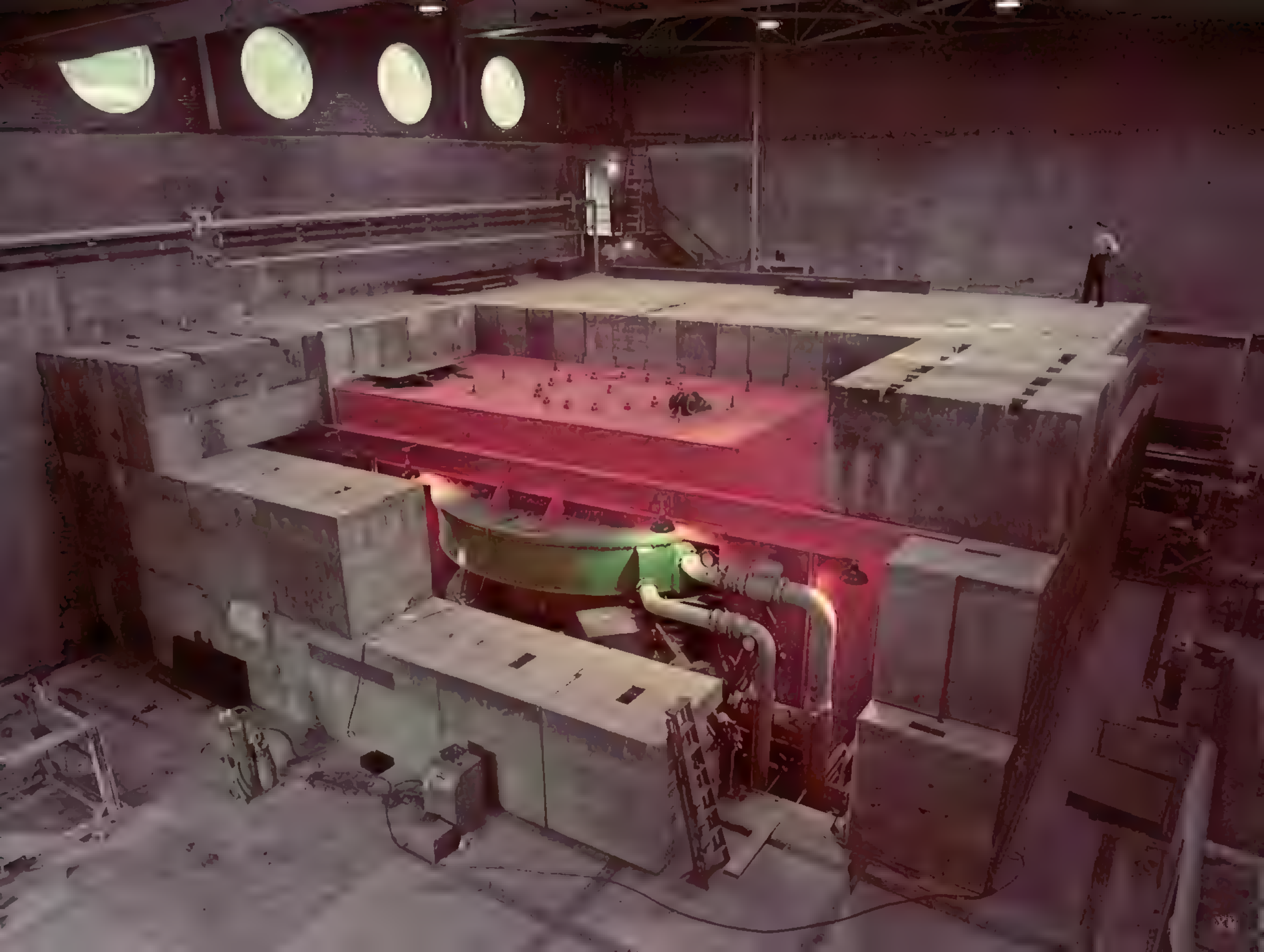
Tupolev Tu-22 KD

BLINDER

1 Flight refuelling probe
2 Aerodynamic diverter
3 Glass-fibre composite radome, hinged to starboard for access
4 IFF equipment
5 PN radar scanner
6 Scanner drive mechanism
7 Radar-transmitting receiving equipment
8 Evkalint ATC antenna
9 Crew compartment forward pressure bulkhead
10 KRP-F VOR/localiser antenna
11 Navigator's compartment lower glazed panels
12 OPB-15 bombsight
13 Navigator's instrument panel
14 Ditching hatch
15 Navigator's K-22 downward ejection seat
16 Ejection seats in extended positions, seats winched up and down on ejection rails for crew access
17 Ejection seat hatches
18 Pilot's cockpit floor level
19 Rudder pedals and control column
20 Instrument panel
21 Instrument panel shroud
22 Cockpit windows with nuclear flash screens
23 Pilot's K-22 downward ejection seat
24 Direct vision side window panel
25 Ditching hatch
26 Radio/Systems operator's aft facing K-22 downward ejection seat
27 Side window panel
28 Crew compartment rear pressure bulkhead
29 Underfloor avionics equipment bays
30 Nosewheel leg door
31 Twin nosewheels, aft retracting
32 Hydraulic steering jacks
33 Retraction/breaker strut
33 RSIU-5 VHF antenna
35 Nosewheel bay doors
36 Missile interface, command and air conditioning system equipment, in place of No.1 fuselage fuel tank bay
37 BTS-63 astro-sextant
38 Glass-fibre composite antenna fairing
39 ARK-92 Neon ADF antenna
40 Life raft stowage, port and starboard
41 Forward fuselage equipment bay
42 Work platform
43 Nosewheel bay with rear access hatch to equipment bay
44 Fuel tank bay bulkhead
45 Forward fuselage fuel tank, total system capacity 12,210 Imp gal (55,500 lit) or 13,200 Imp gal (60,000 lit) with No.1 forward tank
46 Fuselage frame and stringer structure
47 Dorsal spine fairing
48 Wing front spar attachment bulkhead
49 Wing centre-section carry-through structure
50 Centre-section fuel tanks (2)
51 Wing root multi-bolt attachment joint
52 Rear spar attachment bulkhead
53 Missile pylon hydraulic jack, pylon extends for loading and release
54 ARK-11 ADF antenna
55 Starboard wing bag-type fuel tanks (12)
56 Main undercarriage sponson overwing fairing
57 Outer wing panel joint
58 Wing fence
59 Wing skin panelling
60 Forward hemisphere SPO-3 Sirena-3 radar homing and warning system (RHAWS) antenna
61 Wing tip fairing containing anti-flutter weight
62 Starboard navigation light
63 SRZO-2 IFF antenna
64 Starboard aileron
65 Control linkage
66 Aileron servo tab
67 Starboard outboard single-slotted flap (flaperon) segment, extended, functions as aileron at higher airspeeds
68 Flap screw jacks and torque shaft drive
69 Starboard main undercarriage, stowed position
70 Starboard inboard double-slotted flap segment, extended
71 Fuselage overhead pipe and cable ducting
72 Weapons bay frame and stringer structure
73 Conventional bomb racks, not used on missile carrying aircraft
74 BD-294F missile pylon
75 Weapons bay aft bulkhead
76 Blended dorsal spine fairing
77 Undercarriage sponson tail fairing
78 Chaff and flare dispensers
79 Rear hemisphere SPO-3 RHAWS antenna
80 Engine air intakes
81 Translating intake lip cowling, linked to flap and undercarriage operation
82 Ring slot auxiliary air intake
83 Intake lip cowling hydraulic actuators (three per intake)
84 Intake duct framing
85 Starboard engine nacelle
86 Engine bleed air heat exchanger ram-air intake
87 Engine compressor intake
88 Hinged engine cowling panels, above and below
89 Top-mounted engine accessory equipment gearbox
90 Bleed air spill duct
91 Dobrynin RD-7M2 afterburning engine
92 Fin root attachment joints
93 Fin/engine mounting pylon, integral structure with aft fuselage
94 Starboard all-moving tailplane
95 Two-spar fin torsion box structure
96 Fin rib and stringer structure
97 RSBN VOR antennae
98 Fin tip communications antenna fairing
99 ILS antenna
100 Rudder rib structure
101 Rudder hinge panel
102 Rudder trim tab
103 Aft facing television camera
104 Afterburner nozzle fairing
105 Variable area afterburner nozzle
106 Nozzle actuators
107 Afterburner duct
108 Aft fuselage ECM equipment bay
109 Extended tail cone with ECM antennae
110 Equipment cooling air vent
111 Port all-moving tailplane
112 Static dischargers
113 Two-spar tailplane torsion box structure
114 Tailplane rib and stringer structure
115 Tailplane pivot mounting
116 Brake parachute housing, dual cruciform parachutes
117 Tailplane hydraulic actuator
118 Ventral retractable tail bumper housing
119 Aft fuselage fuel tanks (3)
120 Two-segment weapons bay doors, open
121 Door actuating mechanism
122 Door inboard segments fold to allow semi-recessed missile carriage
123 Port inboard double-slotted flap
124 Flap rib structure
125 Flap screw jacks
126 Auxiliary rear spar
127 Drop-down emergency ram-air turbine port and starboard
128 Gearbox and flap torque shaft from central drive motor
129 Main undercarriage sponson fairing structure
130 Chaff dispenser
131 Dual flare launchers
132 Port rear hemisphere SPO-3 RHAWS
133 Port outboard single-slotted flap (flaperon), functions as aileron at higher airspeeds
134 Outboard flap rib structure
135 Outboard flap operating screw jacks
136 Aileron hydraulic actuator
137 Aileron servo tab
138 Port aileron rib structure
139 Static discharger
140 Port SRZO-2 IFF antenna
141 Port navigation light
142 Detachable wing tip fairing
143 Forward hemisphere SPO-3 RHAWS antenna
144 Two-spar wing torsion box structure
145 Wing rib structure
146 Wing bottom skin/stringer panel with root-to-tip access
147 Aileron control rod
148 Leading edge ribs
149 Port wing fence
150 Outer wing panel multi-bolt joint rib
151 Four-wheel main undercarriage bogie
152 Axle beam rotating link, bogie somersaults 180° on retraction
153 Drag strut
154 Hydraulic retraction jack
155 Main undercarriage shock absorber leg strut
156 Sponson overwing fairing
157 Leading edge pressure refuelling connection
158 Ventral jettisonable SPRD-3 rocket-assisted take-off (RATO) boosters
159 Dual radio altimeter antennae
160 Port inboard wing panel fuel tank bays
161 Wing root rib
162 Wing bottom skin continuous access panel
163 Leading edge de-icing air duct
164 Retractable landing light
165 Wing leading edge root fairing
166 Kh-22 air-to-surface missile
167 Missile folding ventral fin

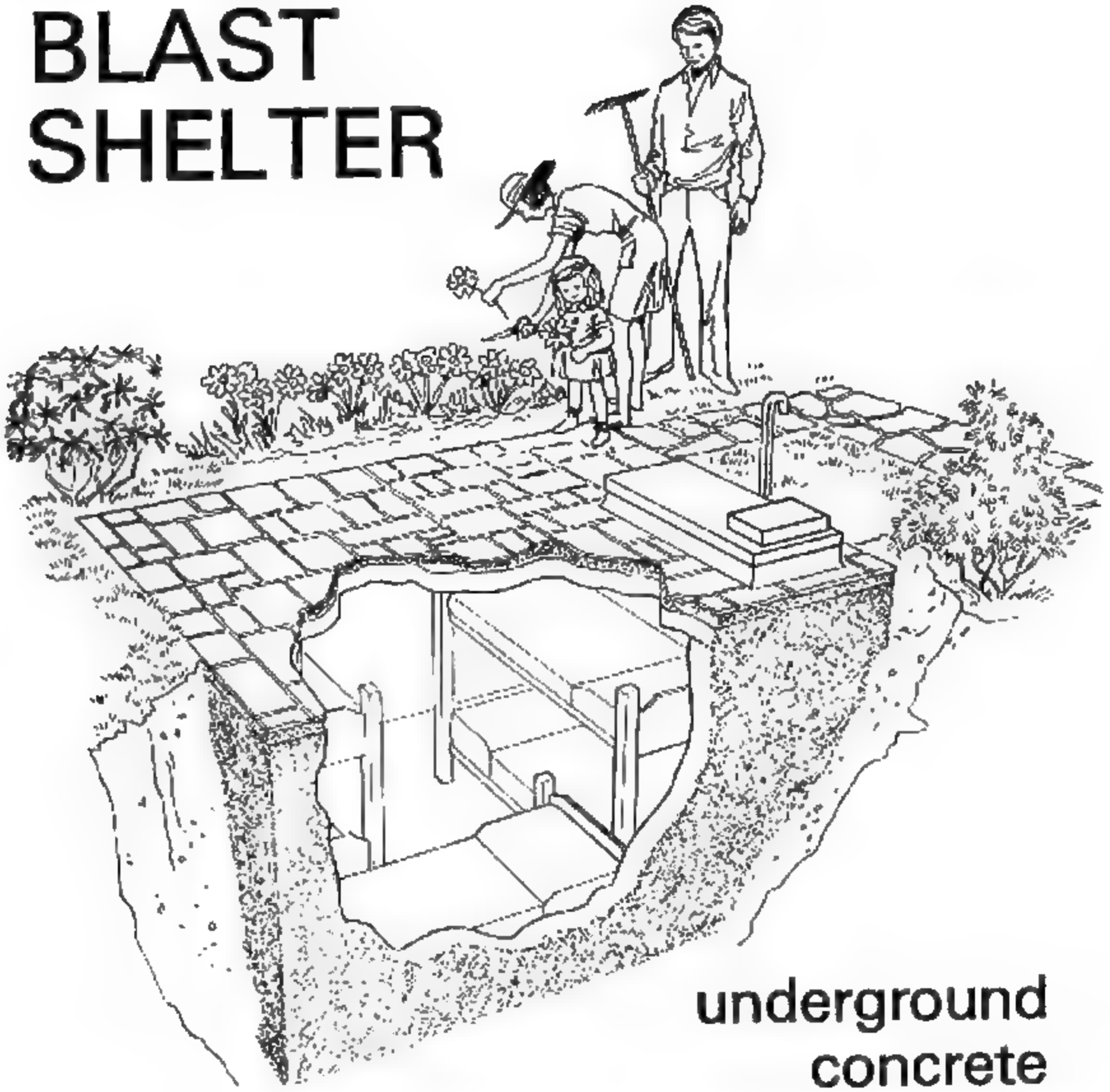
MC72
2010

92456



H-12-3
July 1981
(Supersedes H-12-3
dated May 1978)

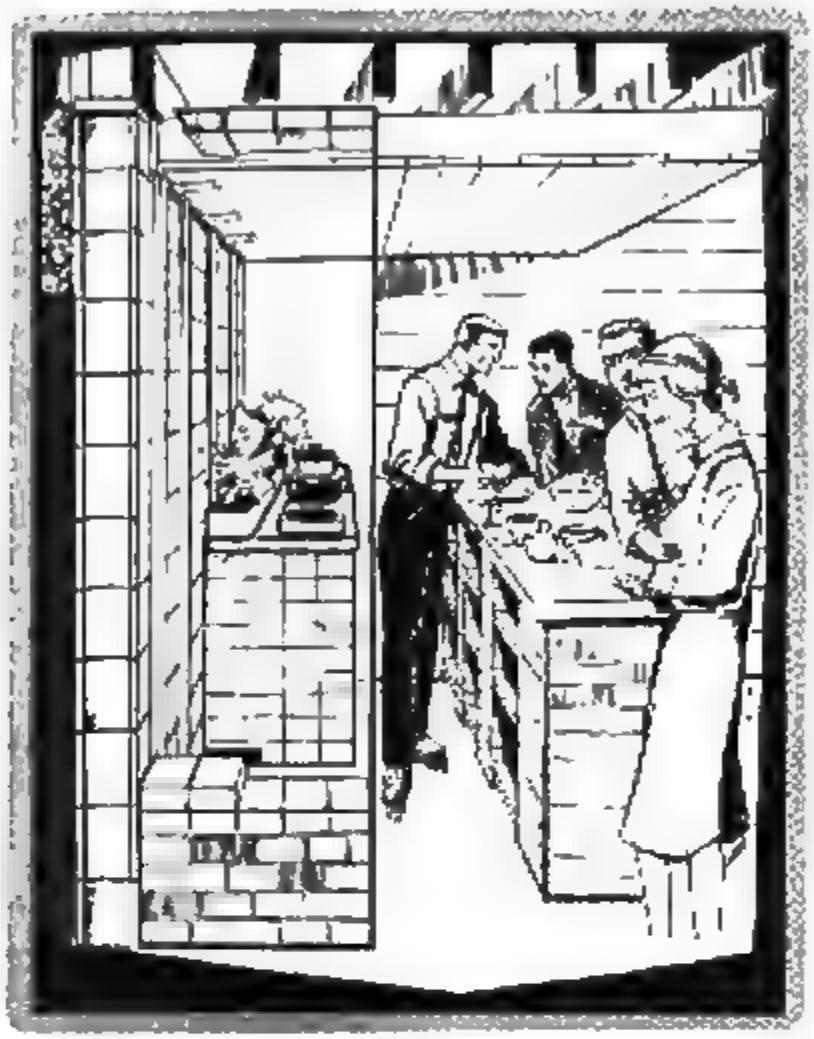
HOME BLAST SHELTER



underground concrete shelter

FEDERAL EMERGENCY MANAGEMENT AGENCY

H-12-D
April 1980



A snack bar
built of brick
or concrete block
can be converted
into shelter.
The hinged canopy
can be tilted-down
for filling with brick
or concrete block.

HOME FALLOUT SHELTER
snack bar–
basement location plan d

FEDERAL EMERGENCY
MANAGEMENT AGENCY

XR

ВОЕННО-КОСМИЧЕСКИЕ СИЛЫ
РОССИЯ

OAK RIDGE

National Laboratory

XR

NUCLEAR WEAPONS CENTER

PREFAB STEEL SHELTER, BEST SELLER IN CHICAGO

A shelter in time saves thine and firms up national will

Of all the political and military proposals in President Kennedy's pre-Berlin package, perhaps the most far reaching is his request for $207.6 million to get the U.S. going on a program of fallout shelters. "The need for this kind of protection is new to our shores," he said, "but the time to start is now." Far from being a panicky national dive for the storm cellar, the fallout shelter program, in the minds of most defense planners, is part of positive deterrence. They hold that a nation with shelters can stand up firmly to threats of nuclear blackmail while a completely exposed country might find it difficult to risk nuclear attack in defense of some less-than-total threat of, say, Berlin size. And should nuclear attack come, shelters—along with other defensive and offensive measures that are now part of the American arsenal—can make the difference between national disaster and survival and recovery.

Studies by the RAND corporation for the Pentagon estimate that a first Soviet attack would be aimed at Strategic Air Command bases and 50 key U.S. cities, and would probably produce 90 million casualties. Physicist Herman Kahn, in his authoritative book *On Thermonuclear War*, based on the RAND studies, figures that with a program of minimum fallout shelters that 90 million number can be cut to between 30 million and 70 million casualties. A "minimum" fallout shelter system plus enough warning to provide 70% evacuation would cut casualties as low as 5 million. "Few people differentiate between having 10 million dead, 50 million dead or 100 million dead," he writes. "It all seems too horrible. However it does not take much imagination to see that there is a difference between having a country which five or 10 years later has a population of 150 million (or more) and a gross national product of over $300 billion and is strong and prosperous, and one which has only a few million scattered survivors grubbing out a miserable existence."

The big difference

The President's program is a sound beginning in an area that has been almost scandalously neglected. Kennedy aims to get the Defense Department going right away on identifying and marking buildings, tunnels, subways, etc. in major cities which could be used as shelters against fallout radiation. Available shelters will be provisioned with minimum supplies for five days' survival, and equipped with independently powered ventilation systems. Shelter spaces will be designed into new federal buildings and will serve, hopefully, as models for shelters in state and municipal buildings, schools and private office buildings. Some $10 million will go into the establishment of a simple alarm buzzer system which can be plugged into an electric outlet and, on signal from the Air Defense Command in Colorado Springs, sound an alarm throughout the country. And $9.3 million will go into providing all-important fallout detection equipment, an essential in preventing panic and signaling a radiation all-clear so people can get back to work.

Survival at home on family plan

Taking their cue from the President, private citizens began looking into fallout retreats for their own homes. In Denver civil defense officials reported an unprecedented 400 requests for how-to-build-it advice. In Chicago the Wonder Building Corporation, probably the largest shelter fabricator in the country, got 104 orders the first day after the President's speech compared to a normal day's 20.

Civil defense officials have no way of knowing how many homes have fallout shelters. They estimate the number in the low ten thousands but admit it may be far greater because do-it-yourself builders keep quiet about their hideaways for fear of being overrun by the panic-stricken in case of attack.

A way out used by an Atherton, California man is to build a shelter for the entire neighborhood. A better way is for each man to build his own. The cost of a fallout shelter can range from $90,000, which is what Austin, Texas hardware manufacturer Charles P. Davis paid, to $30, which is what Nobel Chemist Willard Libby sank into a hillside hole near his house.

Basically a shelter needs to be a place where a man and his family can breathe, see, drink, eat, sleep and perform other bodily functions for two weeks, the critical time after nuclear attack. For simple cellar shelters (about $175 unstocked) eight inches of concrete block in walls and ceilings will keep out most of the radiation, and 10 square feet of floor space is enough for each member of a family. Shelter entrances and air holes should be open for ventilation—forced or otherwise—but they should have right-angle turns in them to block direct radiation. Each shelter needs a battery-powered radio, probably with outside aerial. As for the people themselves, reactions to be expected under enforced confinement are high anxiety at first, then moody silences and personality conflicts before everyone settles down to await the all clear with resignation.

Cramped quarters

•

The President's new defense effort will add approximately $3.5 billion to the requested $44 billion defense budget, promising a deficit of $5.29 billion by the end of the fiscal year. Despite the size of the fiscal hole

XR

OPERATION DOORSTEP

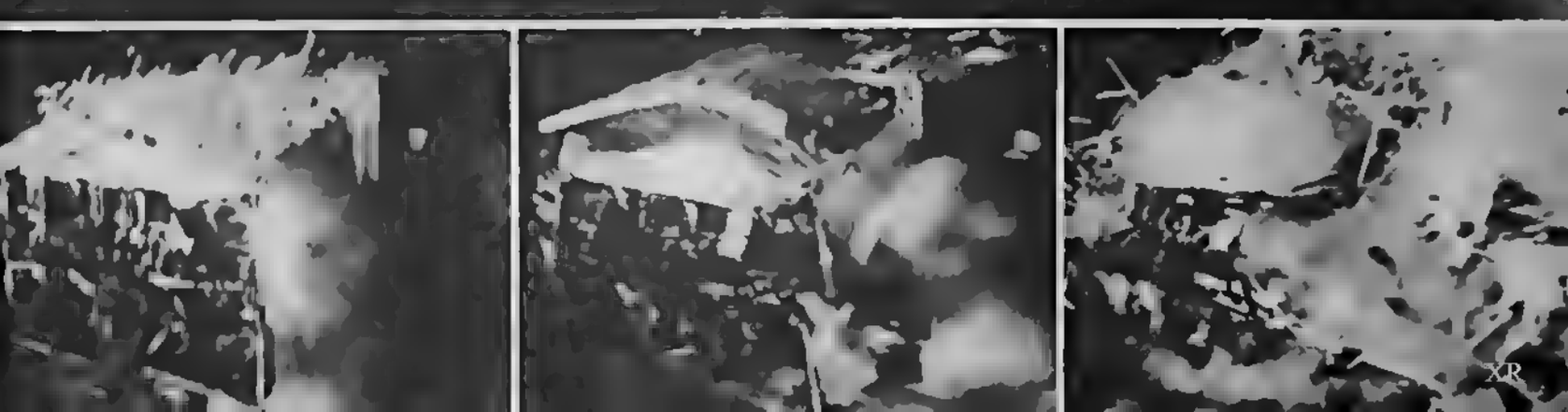
AEC Atomic Proving Ground

Yucca Flat, Nevada

March 17, 1953

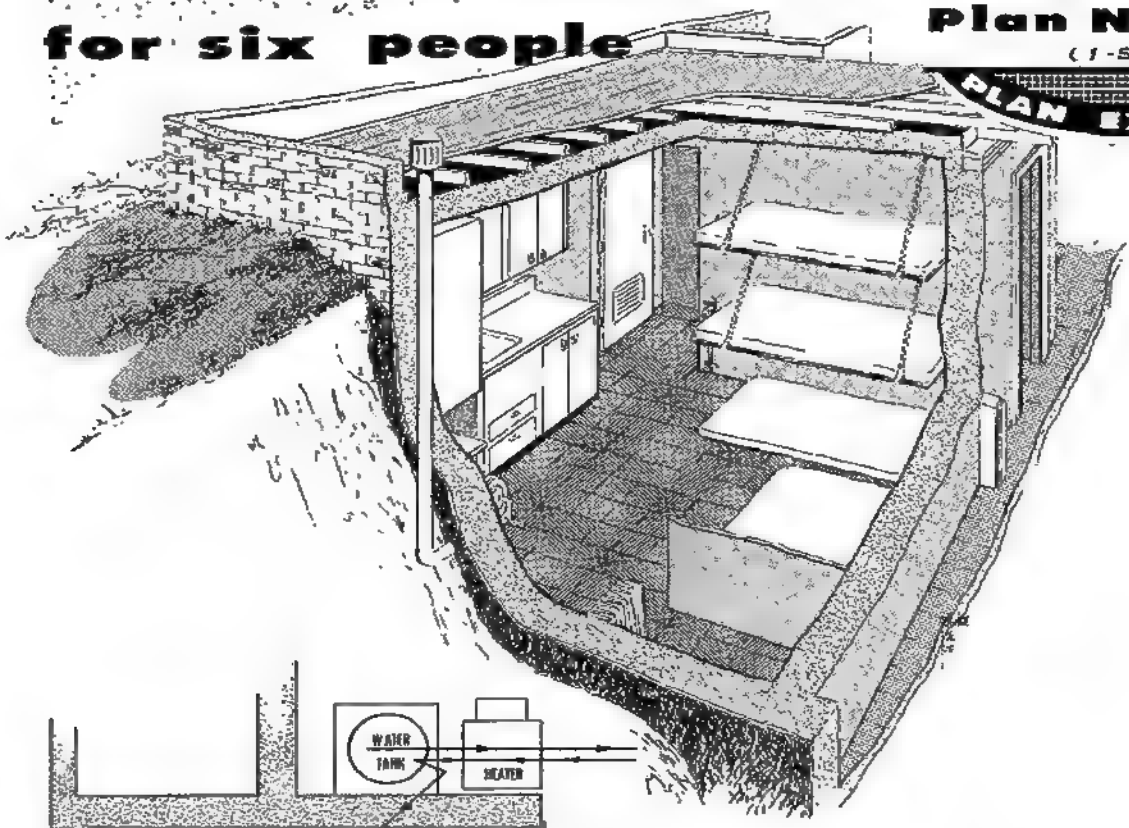
FEDERAL CIVIL DEFENSE ADMINISTRATION

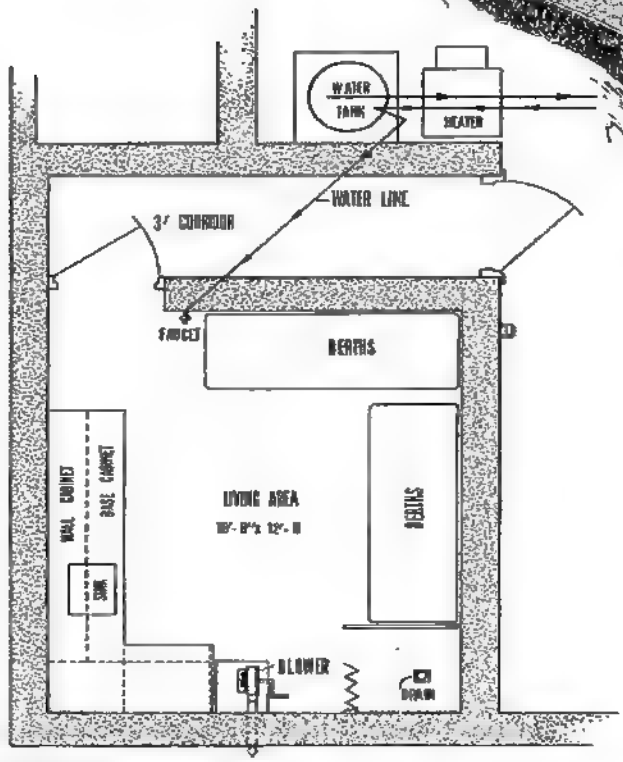
UNIVERSITY LIBRARY OF LOUISVILLE



FALLOUT SHELTER
for six people

COOPERATIVE FARM BUILDING
Plan No. 7166
(1 -SHEET)
PLAN EXCHANGE





This fallout shelter is designed to be built at the same time the house is built. By building a fallout shelter in a new home, the space can be made more usable, the construction work is less costly, and the overall space relationships within the house will be better than if a fallout shelter is put into a home that is already built. This plan details the fallout shelter shown in the construction drawings of house Plan No. 7153, which is available from the same sources as this plan. Below-ground space offers excellent shielding from gamma radiation emitted by particles on the ground surface.

A protection factor of 180 is obtained by placing the shelter in the corner of the basement that has earth up to the ceiling around most of the shelter, and by casting an 8-inch concrete barrier overhead. The protection factor can be increased to as much as 330 by increasing the overhead barrier to a 12-inch concrete slab. With an 8-inch overhead slab, 95 percent of the radiation inside the shelter enters from overhead.

Washington, D.C. Issued December 1963

UNITED STATES DEPARTMENT OF AGRICULTURE Miscellaneous Publication No. 948

FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C., 20402 – Price 5 cents

XR

XR

The SIREN SOUNDS

There are two Civil Defense Siren Signals. Each has a different meaning. Both are urgent warnings to you. They require action — your action.

SIREN SIGNAL	MEANS	YOUR ACTION
"ALERT" Steady blast: 4 minutes	Attack probable	Evacuate City; leave at once.
"TAKE COVER" Warbling blast: 3 minutes	Attack coming any minute	Take cover at once in best available shelter.

When sirens are used for practice only, or for testing to determine if in good working order, this is always publicized in advance in the newspapers and on the air.

IF there has been no public notice of practice or test

- *WHEN YOU HEAR THE SIREN IT WILL BE THE REAL THING.*
- *TAKE IMMEDIATE ACTION TO SAVE YOURSELF.*

How will I know What's Going On?

- *Use your radio.* Confirm the siren signal by tuning regular radio channels; if they are off the air, try emergency channels 640 or 1240.
- Even after the disaster hits, whether remaining in shelter or leaving the City, do not use the telephone. Lines are urgently needed for Civil Defense, police and military calls.
- Keep your radios tuned. Channels 640 and 1240 will carry news, instructions for your safety, information of vital importance to you.

Remember 640 and 1240

Arrange destination or learn assigned destination for evacuation. Take all the family on an outing to your destination (reception area), following the traffic pattern (traffic route), so all will be familiar with where you go and how you get there.

Keep automobile ready at all times.

Be sure you and each member of your family know this San Francisco Plan: "It's Your Life." Discuss together your preparations and what your actions are to be in event of emergency. Especially make clear that any separation in leaving the City is temporary and that re-union will be at reception area (destination).

DO WHEN THE SIREN SOUNDS . . .

If ▬▬ evacuate (leave) City at once. Meet family at pre-arranged destination or at assigned destination; don't delay departure.

REGARDLESS OF DELAYS OR DETOURS, STAY IN TRAFFIC PATTERN.

Turn radio to 640 or 1240. DO NOT USE TELEPHONE.

If ∿∿∿ take cover at once. Stay in cover until radio (640 or 1240) or police or other official advises it is safe to come out.

Turn radio to 640 or 1240. DO NOT USE TELEPHONE.

- How to do these things?
  Read this booklet for complete information.

Here are the essentials of personal safety in time of emergency. All types of mass disaster are covered as briefly as so large and vital a subject can be.

Read carefully . . . Re-read . . . Read again.

- **Be sure everyone in your family is familiar with these facts and the actions to take in emergency.**

Minute Man . . . 1950

Some things have changed since 1776, but not this. We here in America still need "Minute Men" to protect our liberties—just as much as we needed "Minute Men" to win them.

Charles H. Boyd, farmer, veteran and student, exemplifies our modern version of those men who stood and fought at Lexington and Concord.

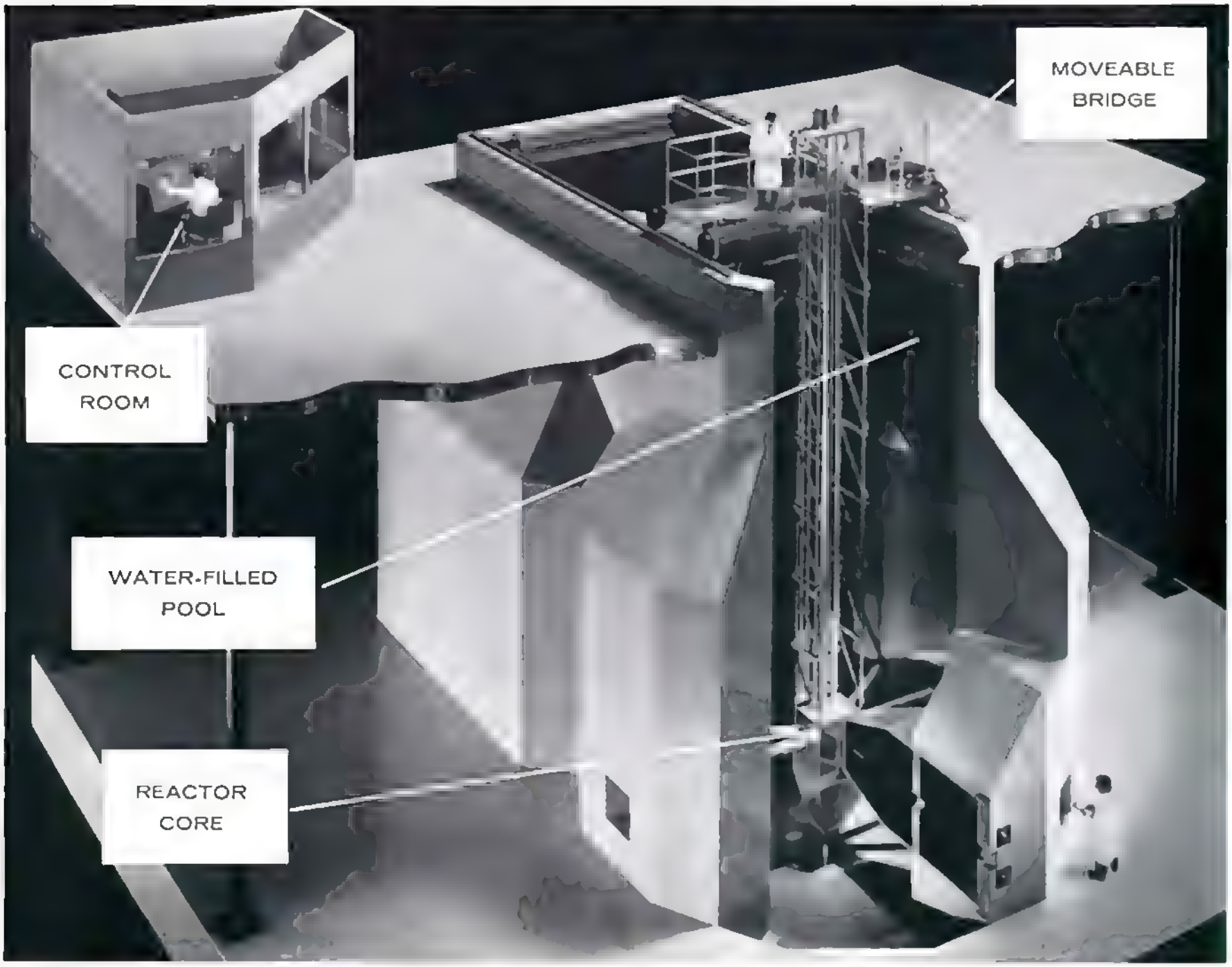
He is the 1st Sgt. of Headquarters Company, 816th Field Artillery Bn., an Organized Reserve Corps unit, located in Columbia, Missouri. He, and thousands of Army Reservists like him, keep themselves and their units trained and ready to defend our country and our freedom by being active in the Organized Reserve Corps.

Find out more about this vital component of our defense establishment by visiting your nearest U. S. Army and U. S. Air Force Recruiting Station or your nearest ORC Unit Instructor.

SERGEANT FIRST CLASS BOYD USING FIELD TELEPHONE DURING SUMMER CAMP MANEUVERS

A THOUSAND PRODUCTS **Bendix** A MILLION IDEAS

AVIATION CORPORATION



Cutaway of Bendix nuclear research type reactor model displayed at Atoms For Peace Conference, Geneva, Switzerland.

Why Universities Need This Nuclear Research Reactor *Now!*

We have split the atom and made a bomb, but where we go from here depends largely on the strange structure in the photo and others like it. It is a nuclear *research type* reactor. Right now scientists have literally thousands of ideas for putting the atom to work in medicine, biology, chemistry, metallurgy. But they need this reactor to hatch the eggs—are handcuffed without it.

Industry has ideas, also, but too few reactor engineers. Reactor experience is necessary in the training of reactor engineers. A very small number of schools are having reactors built now, but the majority do not have the necessary funds.

If alumni, industry and philanthropic foundations were enlightened to the vital need of research reactors for tapping the talent of the nation, more universities would soon have this equipment. You, as an individual alumnus, industrialist, regent or philanthropist can aid this effort by discussing the problem at the institutional level.

Bendix experience on nuclear projects qualifies us as a top source for research reactors. For eight years our Kansas City Division has operated exclusively for the Atomic Energy Commission; for five years our Research Laboratories Division in Detroit has worked on: design of research reactors, reactor power plants, control components, reactor simulation equipment and nuclear power plants.

We invite you to write for the brochures "Atoms At Work For Peace", "Reactor Actuators And Control Equipment" and "The Bendix Reactor Simulator".

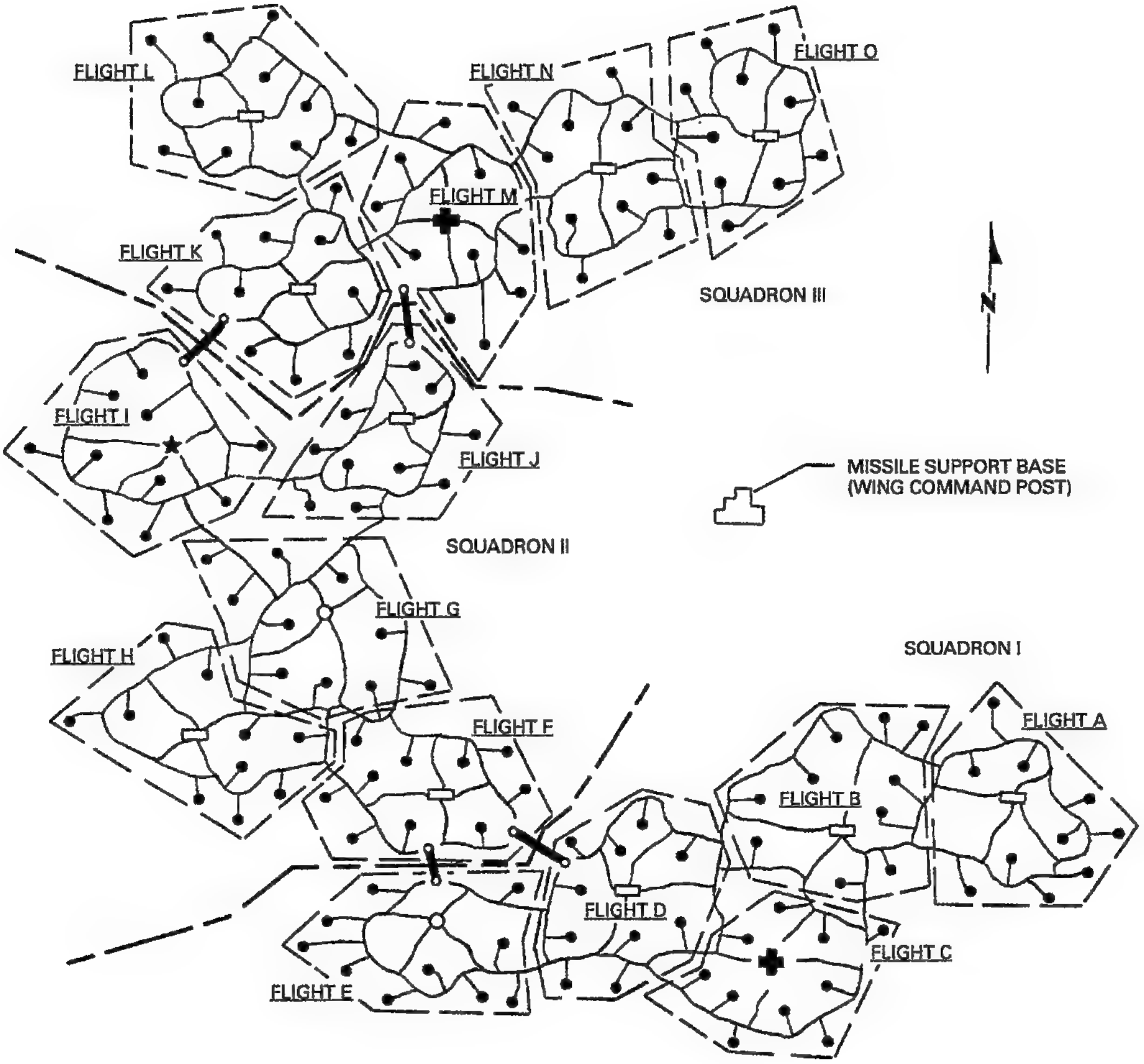
Bendix

AVIATION CORPORATION
FISHER BLDG., DETROIT 2, MICHIGAN

XR

FOXHOLE SHELTER might be dug after the radio warning and before start of fallout, and even if left uncovered, provides 95% protection. A cover, desirable for extra protection, should be shaken free of radioactive dust occasionally.

XR


FLIGHT L
FLIGHT N
FLIGHT O
FLIGHT M
FLIGHT K
SQUADRON III
N
FLIGHT I
FLIGHT J
MISSILE SUPPORT BASE
(WING COMMAND POST)
SQUADRON II
FLIGHT G
FLIGHT H
SQUADRON I
FLIGHT F
FLIGHT A
FLIGHT B
FLIGHT D
FLIGHT C
FLIGHT E
ALTERNATE COMMAND POST (1 PER WING)
SQUADRON COMMAND POST (2 PER WING)
PRIMARY RELAY (2 PER WING)
PRIMARY LCC (10 PER WING)
LAUNCH FACILITY
CIRCUIT RUNS
INTERSQUADRON CONNECTION

excellent. Distances over this require little or no shelter, and the basement of a house would give enough protection.

When you plan your shelter, cut costs only on nonessential items. Don't cut costs on construction. Plan to build just as much protection as you can afford. We are living in nerve-wracking times, and protection needs two years from now may be even greater than protective needs today.

Rep. Chet Holifield of California gave a good picture of the situation in a report released by Congress last September:

"This Nation can survive a nuclear attack, if it prepares itself. It can recover. It can restore a viable economy. It can preserve free institutions. It can re-establish high standards of living." •

MAXIMUM - 3000 R-HOUR

7 HOURS - 300 R-HOUR

48 HOURS - 30 R-HOUR

TWO WEEKS - 3 R-HOUR

These drawings typify the decay rate of radioactive debris, as measured in roentgens per hour.

Pieces of driftwood against backgrounds of swirled linoleum paste form striking decoration in master bedroom

is designed to "bring the outdoors indoors" for ordinary peaceful living, yet has a structure built to resist great destructive forces. Several of the walls are completely of glass that would be swept away by a powerful shock wave, but could later be replaced. A continuation of his living-room rug is pulled up to shroud the glass wall in that room when a button is pressed.

Other walls of the house have a fluted design to resist shock wave and a fireproof exterior surface of Gunite.

A garden growing in half a foot of soil on the flat roof provides insulation against extreme heat or shock. All exposed wood, inside and outside of the house, is fire-resistant redwood coated with fire-retarding paint. In addition to the underground sanctuary, equipped with bottled oxygen, there is a bombproof shelter in the house itself, consisting of a large steel-and-concrete vault containing a sitting room and bathroom. Other features of the home include a three-story indoor tree. ★ ★ ★

Smoke from midroom fireplace is caught by umbrella canopy, drawn up the chimney by fan mounted inside

Tree inside house extends full three stories, here passes through large floor window of louvered glass

Main entrance of house is through tunnel visible at left. Glass walls at right protect an orchid grotto

Car is parked on cantilevered steel tracks which overhang cliff below house. Space is at a premium

Bomb shelter in the house itself has strong steel shutters which can be closed in case of air attack

Fireplace in front yard is built into side of hill. Lava appearance of hill comes from stippled Gunite

HOUSE FOR THE ATOMIC AGE

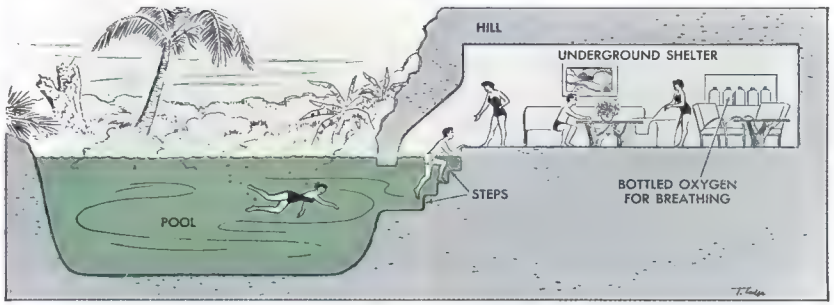
Television set is built into huge tree trunk fitted into wall of living room. Dials are mounted at side

A SWIMMING POOL that becomes an automatic decontamination bath during an A-bomb attack is one of the features of a home that Hal B. Hayes, Hollywood contractor, is completing for himself. In the hillside next to the swimming pool he's building an underground sanctuary that you reach by diving into the pool. His house

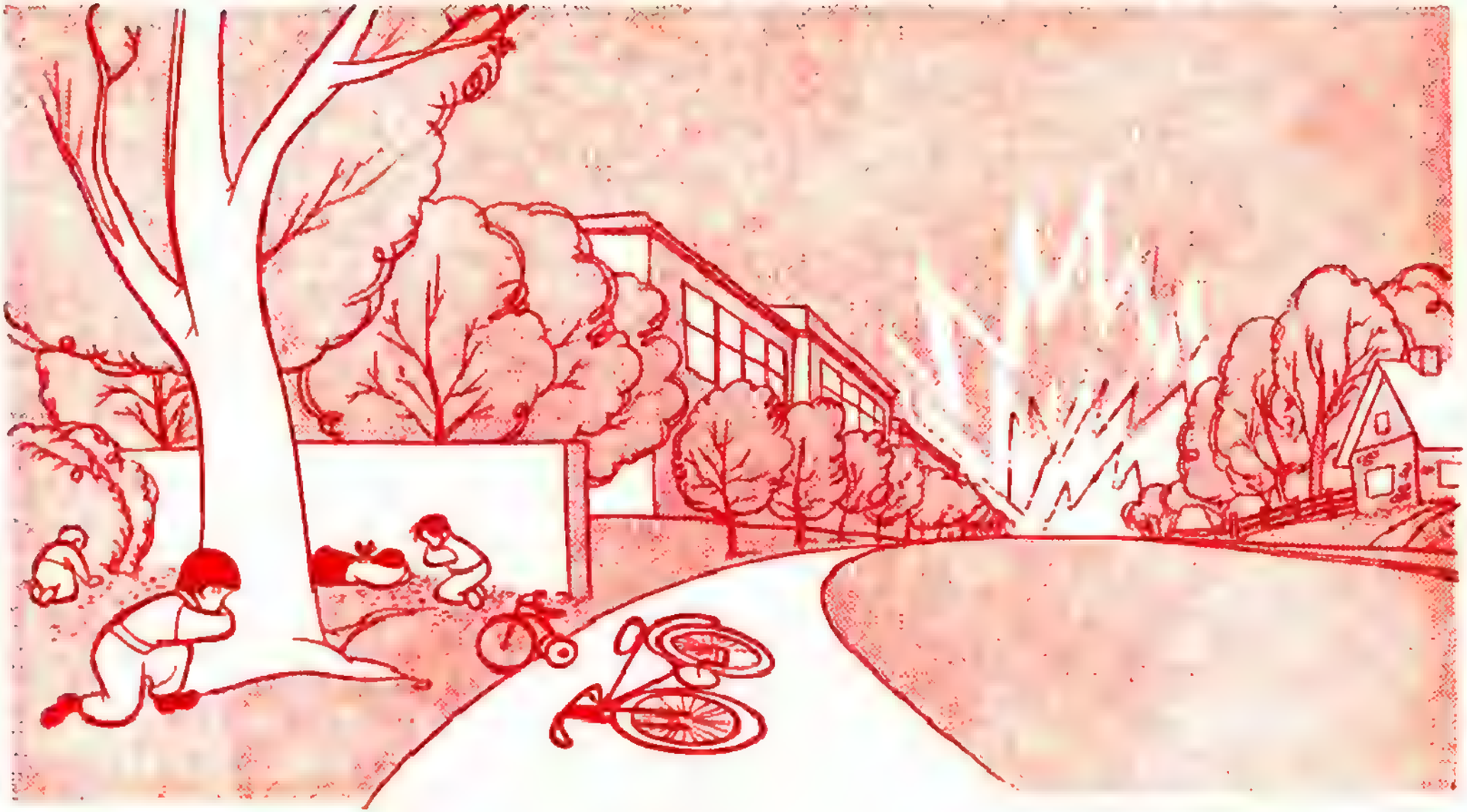
Tree trunks and limbs are used for furniture, here support the glass top of table which Hayes is using

Solid wall is fluted to resist shock waves. Fragile glass front could be replaced easily after blast

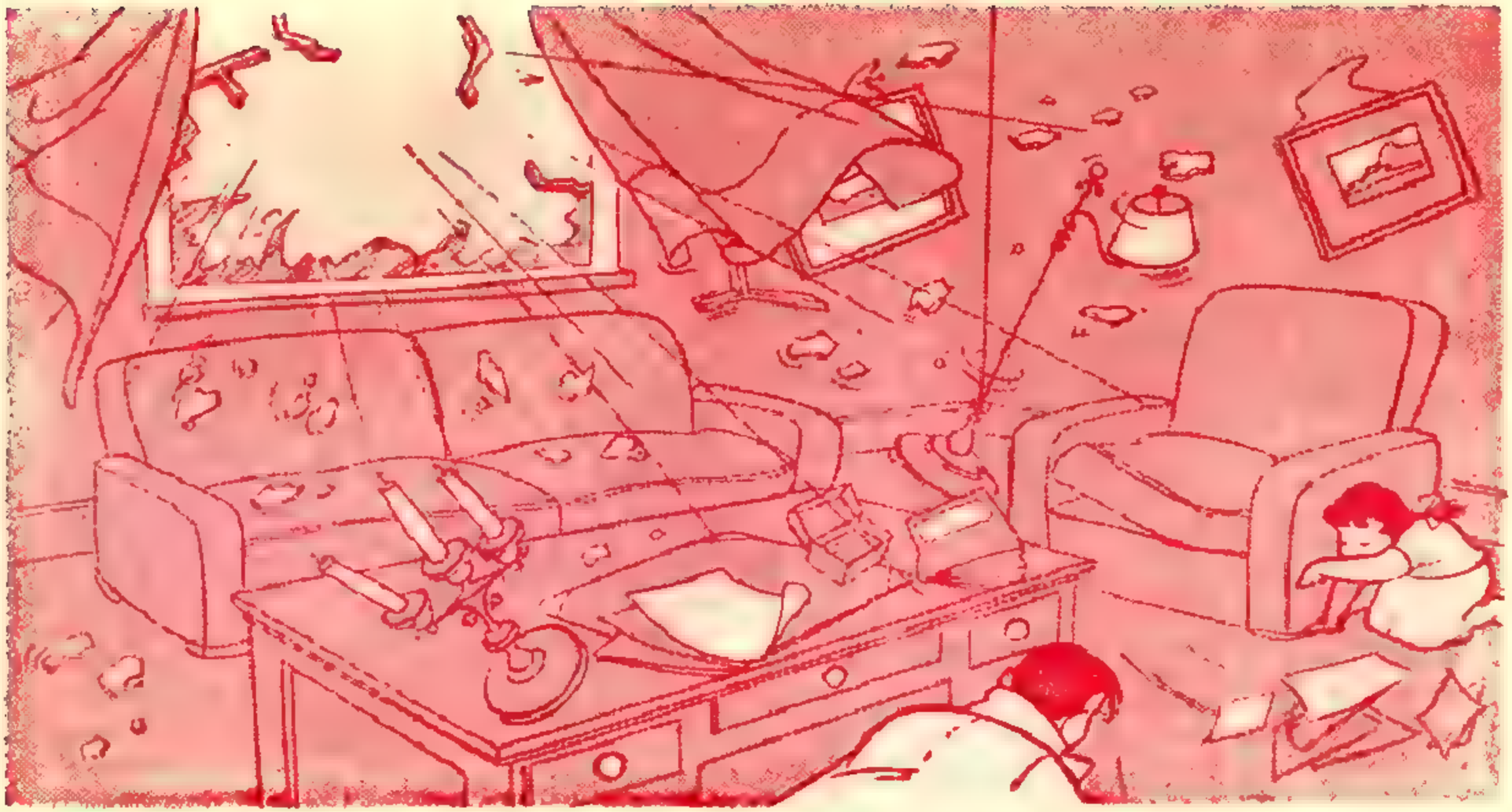
Cutaway shows approach to underground sanctuary via swimming pool. Hayes figures that any radioactive contamination on a person's body would be washed off while swimming to the entrance of the sanctuary



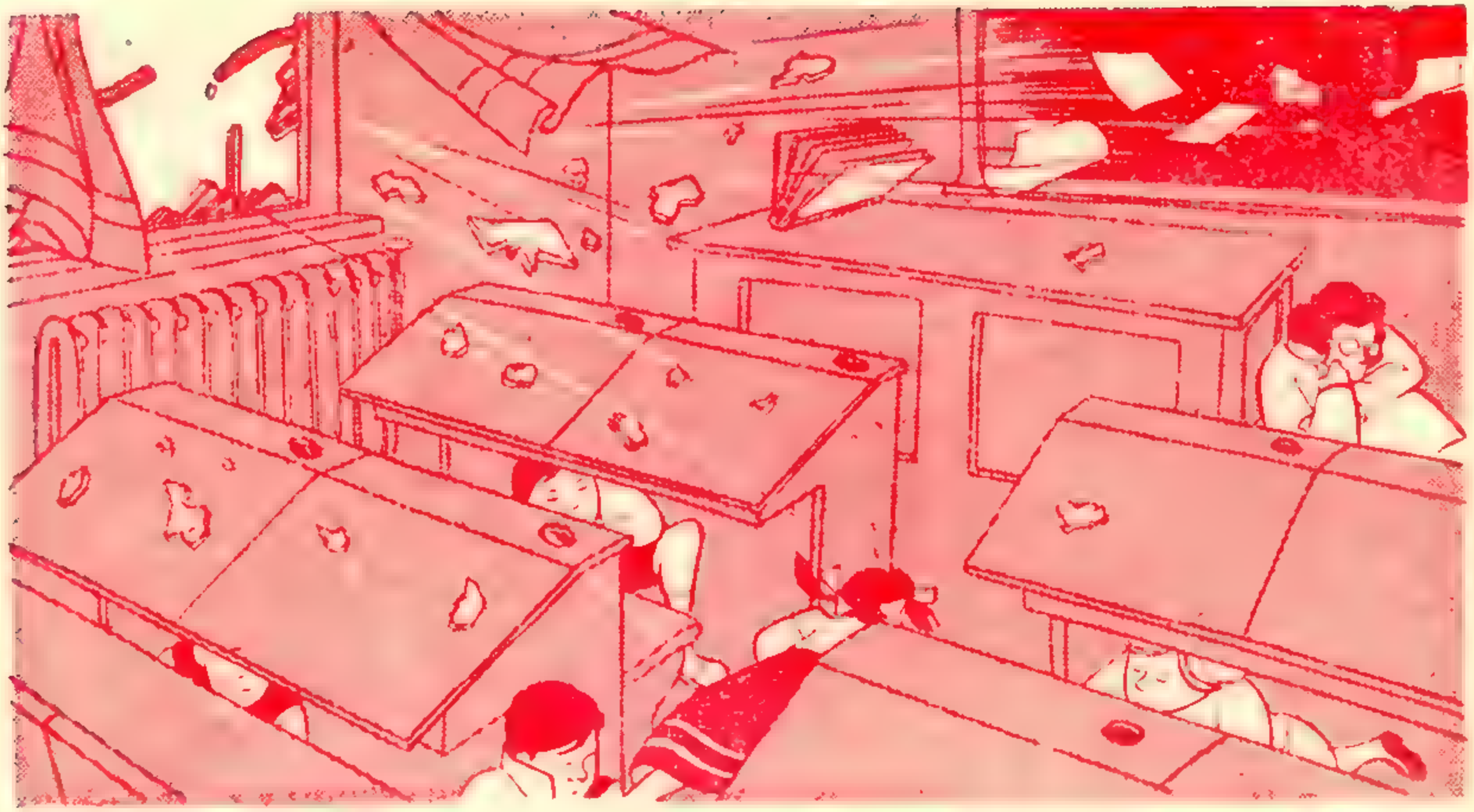
XR



OUTDOORS, DUCK BEHIND WALLS AND TREES. EVEN IN A HOLLOW IN THE GROUND. IN A BUS OR AUTO, DUCK DOWN BEHIND OR UNDER THE SEATS.



THERE IS ALWAYS **SOMETHING** TO SHELTER
YOU-INDOORS, A SCHOOL DESK, A CHAIR, A TABLE.
ALWAYS DUCK AWAY FROM WINDOWS AND GLASS DOORS.



BUT SOMETIMES--**AND THIS IS VERY IMPORTANT**--
THE BOMB MIGHT EXPLODE AND THE BRIGHT FLASH
COME... *WITHOUT ANY WARNING!*

TWO "DOGS" — Air Force [illegible] (or its F-89D [illegible] dog) interceptors run up their jet engines, their aluminum wings glowing in the dusk. Shortly the planes will go up on a night [illegible] and their radar equipment will try to locate a target plane which is flying somewhere, high in the darkness over the desert.

XR

FRIEND or FOE?

How many? How far? How fast?

Time: 0314, on a U.S. Aircraft Carrier somewhere on the high seas. Wind 44 knots; visibility zero. And, somewhere out there in the fog are four "objects"—either as friendly as a neighbor's puppy or as deadly as a rattlesnake!

In a situation like this, somebody has to find all the answers—but quick! With 3,000 lives at stake and a hundred million dollars worth of equipment riding the waves, split-second identification of "what's out there," is a *must.*

They used to do the job with a half-frozen observer in the crow's nest, a megaphone and a handful of men on a spray-lashed bridge. Today, a crew of skilled technicians sit in the scientific maze of a modern Combat Information Center and call on Electronics to do the job. The mere flip of switches is enough to *see* what's ahead, identify its character, distance, and speed, and if necessary, alert the entire company through the intercommunication system and bring full fighting power to life.

This is "shipboard radar." A simple phrase for some of the most fantastic electronic equipment of our age. We at Stromberg-Carlson helped in its development and today provide to the armed forces many of its most important component parts. Thus the same engineering skill which, 60 years ago, harnessed Sound and Electricity for better communication methods still weds the pair to help preserve our national security. Perhaps *your* business has a problem we could help you solve.

There is nothing finer than a

Stromberg-Carlson®

Rochester 3, New York

Telephone Instruments and Central Office XY Dial Equipment | High Fidelity Radios and Radio-Phonographs | "Panoramic Vision" Television Receivers | Office Intercom Equipment | Electronic Carillons for Churches and Public Buildings

AND MANY OTHER ELECTRONIC PRODUCTS FOR THE ARMED FORCES

XR

First Team

The *years-ahead* design and production capabilities of Northrop Aircraft, Inc. are time-proved by the performance of the long-range Scorpion F-89 all-weather interceptor series. Today the newest members of the Scorpion family, the F-89Ds, constitute the "first team" of the U. S. Air Force, standing combat-ready at our most critical defense bases. Although the Scorpion's basic lines were laid down years ago, advanced engineering enables it to penetrate into the high altitudes where tomorrow's bombers will travel. Now armed with the massive striking power of 104 air-to-air rockets—heaviest punch in the air defense arsenal—the reliable Scorpion, with its two-man crew, can make effective use of even newer weapons as they are proved and produced. Because of this unique design flexibility, the Air Force has gained years and saved millions of tax dollars in its build-up to defensive strength. Like its teammate, the Northrop Snark B-62 long-range pilotless bomber, the Scorpion is a product of the creative ability of Northrop Aircraft, Inc.—since 1939 world leaders in the design, development and production of all-weather and pilotless aircraft.

NORTHROP

NORTHROP AIRCRAFT, INC. • HAWTHORNE, CALIFORNIA

Pioneer Builders of All Weather and Pilotless Aircraft

XR

XR

IN THE FACE OF WORLD TENSION, America is again working against time to build up its Air Power. It is not for us to say how much Air Power this country should have—that is for your military leaders to recommend and Congress to decide. We do, however, feel a responsibility to help you understand the vast complexity of modern aircraft manufacture and operation so that you may realize why the job at hand takes so long and costs so much . . . and why America's security demands a long-range Air Power program in peace as well as war.

"SCRAMBLE!"—PILOTS AND RADAR OPERATORS DASH TO MAN WAITING LOCKHEED F-94 "STARFIRE" JET INTERCEPTORS AT AN EAST COAST AIR FORCE BASE.

YOUR AIR FORCE IS TACKLING A LONG, HARD JOB—

BUILDING AN AIR DEFENSE SYSTEM AT HOME

In these perilous times men charged with national defense must be prepared for any emergency—including the possibility of a sneak attack by fleets of enemy super-bombers on cities within the U. S. These bombers could bore in at tremendous speeds, miles above the earth, far out of ordinary sight and hearing.

If such an attack were ever launched, the main job of intercepting it would fall to the U. S. Air Force's Air Defense Command.

ADC's assignment is incredibly complex. First of all it involves setting up and staffing a network of radar detection stations around more than 18,000 miles of this country's borders and coastlines.

Then once an attacking flight has been detected by radar, it must be met by ADC's squadrons of jet interceptor fighters. These interceptors must be ready for instant action. Every hour that passes . . . day and night . . . hundreds of them are poised on the runways of heavily guarded airfields. Their guns are always loaded, their tanks fueled, their pilots ready.

These sleek-looking fighters are a breed apart from all other aircraft. Not only must they climb with blinding speed, but they must be able to locate, intercept and shoot down the fastest bombers—day or night, fair weather or foul. This means each must have its own elaborate radar system and heavy armament—yet still have reserve power to outfly enemy.

Add to all the above problems the need to train pilots, ground crews, radar technicians . . . build interceptor bases, filter centers . . . and provide 20,000 observation posts for civilian volunteer spotters, and you begin to see what a big job the Air Force is tackling in just this one branch of Air Power.

To succeed, the Air Force needs realistic public understanding of the time needed to expand Air Power . . . and a recognition of the hard fact that Air Power must be consistently maintained in peace, if it is to be relied upon to help prevent—or meet—the terrible emergency of war.

XR

HERB PHILBRICK'S Believe It or Else!

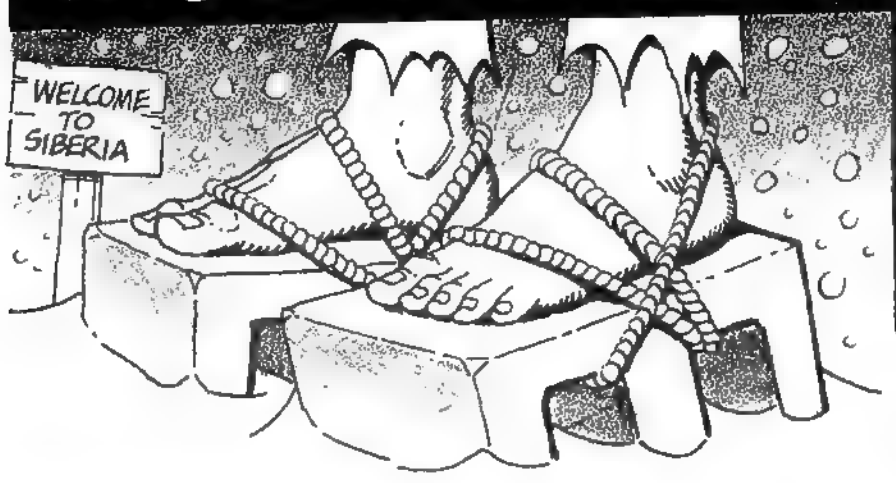
WATCH **HERB PHILBRICK'S** CONTINUING STORY OF ONE MAN'S FIGHT AGAINST INTERNATIONAL COMMUNISM ON **"I LED THREE LIVES."** CHECK YOUR LOCAL NEWSPAPER FOR TIME AND STATION...

RUSSIAN CHRISTMAS

IN COMMUNIST COUNTRIES, CHILDREN ARE ONLY ALLOWED TWO PRESENTS...

ONE FOR EACH PARENT THEY TURN OVER TO THE SECRET POLICE!

RUSSIAN SHOES!



RUSSIAN BRICKS

The so-called "IRON CURTAIN" around Europe's CAPTIVE SATELLITE NATIONS is not really made of IRON at all...

but from "FOREIGN AID" sent by Bleeding-Heart Liberals and Pinko Sympathizers!

RUSSIAN JUSTICE!

IN THE KREMLIN'S BASEMENT ARE THREE HUNDRED COMMISSARS WHOSE ONLY DUTY IS TO MAKE UP LISTS OF AMERICANS TO BE SHOT WHEN THE COMMUNISTS TAKE OVER!

RUSSIAN SOUP!

BORSCHT, THE NATIONAL DISH of RED COMMUNISTS, is actually made of GROUND-UP LATVIANS, ESTONIANS, and HUNGARIAN Freedom Fighters!

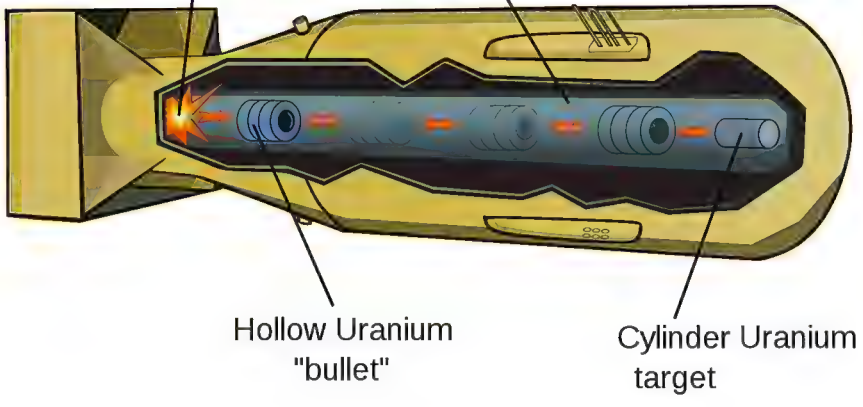
XR

SURVIVAL SUPPLIES
FURNISHED BY
OFFICE OF CIVIL DEFENSE
DEPARTMENT OF DEFENSE

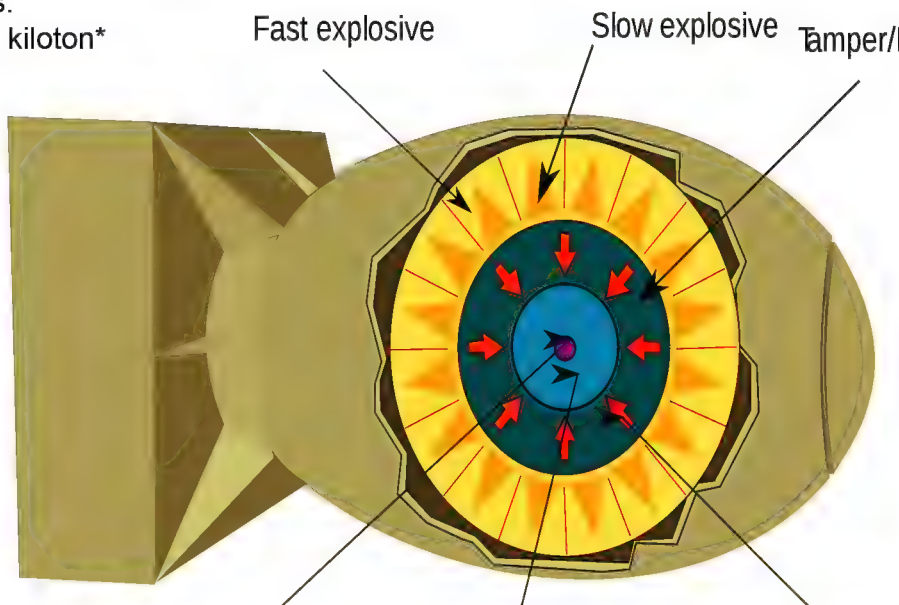
CIVIL DEFENSE
SURVIVAL RATION CRACKER
CONTENTS 40 POUNDS
NO. OF CRACKERS PER POUND 89
DATE OF PACK 1964

XR

" LITTLE BOY" = Hiroshima
gun type design, Uranium U238
weight 9,700 lbs
yield= approx. 15 kiloton*



"FAT MAN" = Nagasaki
implosion design, Plutonium
weight 10,213 lbs.
yield= approx. 21 kiloton*



*1 kiloton = 1,000 tons TNT

XR

CCC

SCIENTIFIC INTELLIGENCE MEMORANDUM

POTENTIAL NEW AGENT FOR UNCONVENTIONAL WARFARE

Lysergic Acid Diethylamide (LSD)
(N, N-Diethyllysergamide)

CIA/SI 101-54
5 August 1954

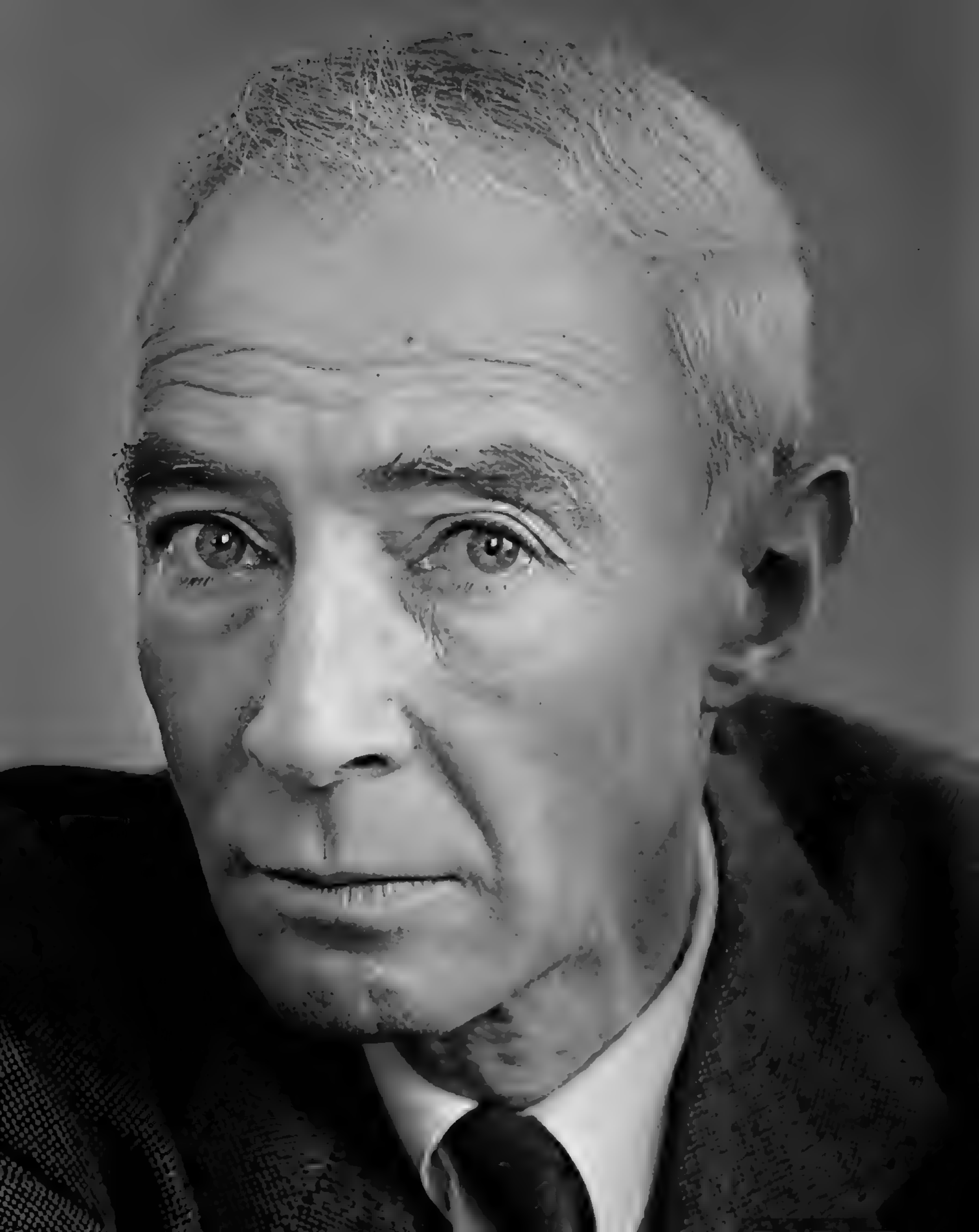
CENTRAL INTELLIGENCE AGENCY

OFFICE OF SCIENTIFIC INTELLIGENCE

XR

JAMES VAUGHAN PHOTO - ALL RIGHTS RESERVED

JAMES VAUGHAN PHOTO - ALL RIGHTS RESERVED



HOW Radio-Relay WORKS
The microwaves used for telephone transmission travel in a straight line. So relay towers, like those shown, are usually built on hilltops, averaging about 30 miles apart. Each tower picks up microwaves from its neighbor, and with complex electronic equipment amplifies and focuses them like a searchlight, then beams them accurately at the next tower. And hundreds of Long Distance telephone calls ride the beam at the same time.

New skyway spans nation with words and pictures

BELL SYSTEM *Radio-Relay* BUILT FOR LONG DISTANCE CALLS AND TELEVISION

There's something new on the national horizon! Bell Telephone construction crews have completed the last link in a coast-to-coast *Radio-Relay* system that is unique in all the world. Today, communications ride on radio microwaves, flashed through the air from tower to tower.

It was an historic event in 1915, when wires first carried the human voice across three thousand miles of mountains and prairie. By 1942, telephone messages were carried across the United States by another means—cable, both underground and overhead. And now comes *Radio-Relay* to supplement wire and cable!

The new system is already in use for Long Distance telephone service and coast-to-coast television. This new skyway helps make America's vast communications network even stronger and more flexible. And it could hardly happen at a better time. The demands of defense are heavy and urgent.

BELL TELEPHONE SYSTEM

XR

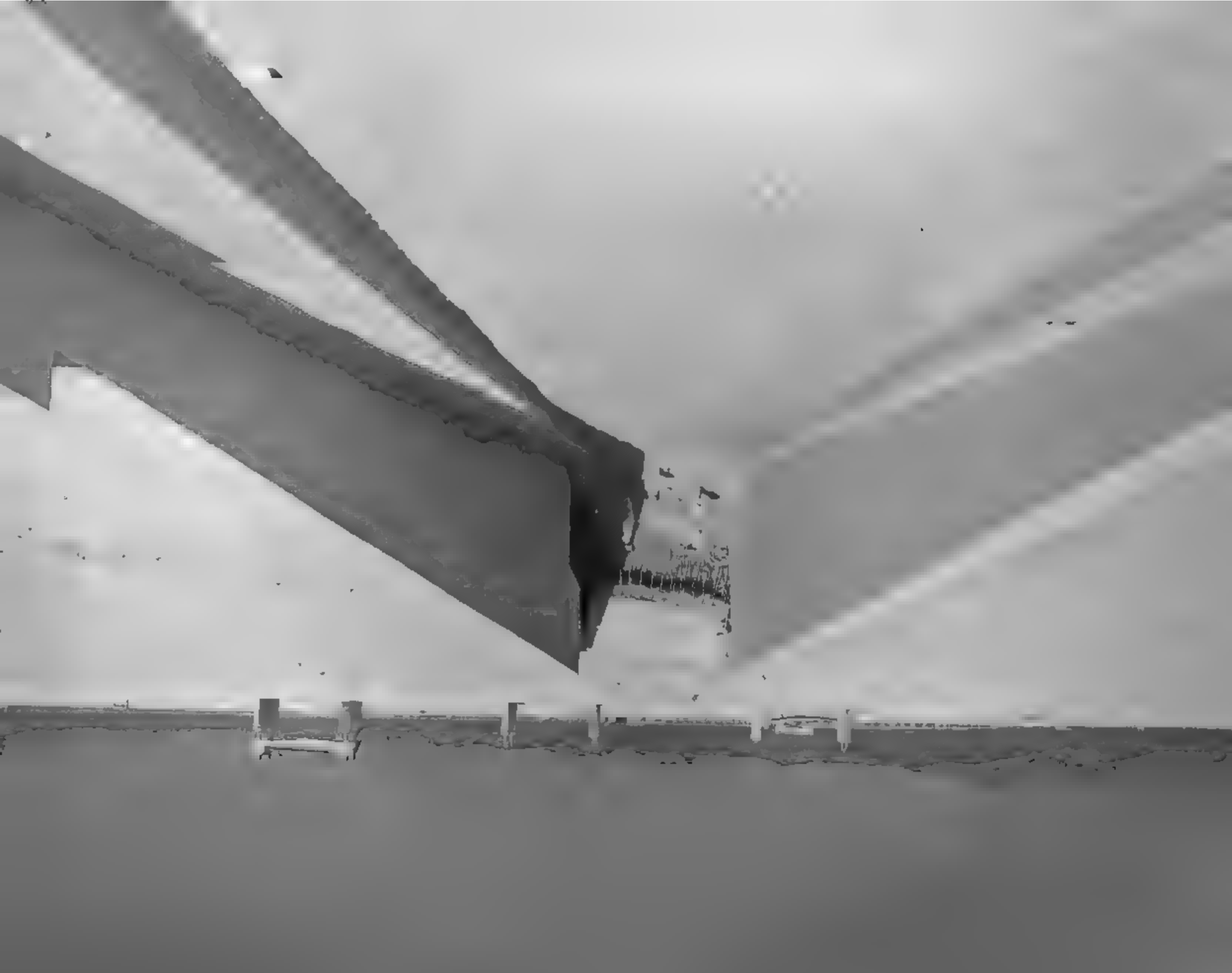


Photo Copyright © Martin Pole
AIRLINERS.NET

SOVIET FIGHTERS

Bold and Distinctive Design Characterises Four Types: Possible Rocket Launchers on the Very Fast Mig-15

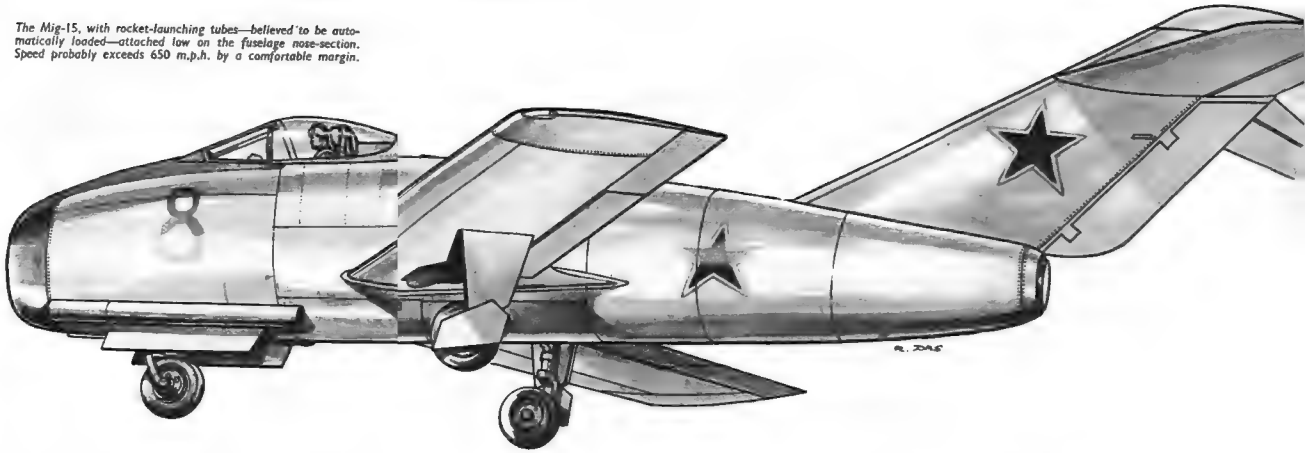
DURING the war years the scarcity of information on the newest enemy aircraft was the cause of much spurious material—descriptive and pictorial—finding its way into print. Not only was this an embarrassment to those responsible for disseminating authentic data, but on occasions it proved a veritable menace.

In post-war years a similar state of affairs has arisen in respect of Soviet aircraft and, while some smart amateur intelligence work has been noted, especially in this country, its value has been largely nullified by dilution (or pollution) with strongly suspect, or patently incorrect, effusions.

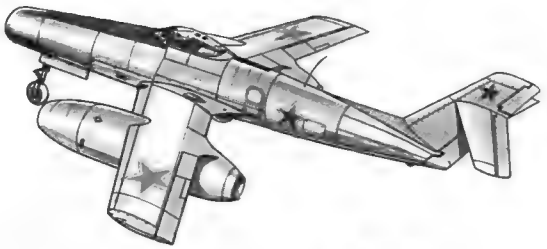
The most positive information on new Soviet aircraft is that based upon photographic evidence, before "interpretation" by "experts." But this virgin material is extremely rare and, rather than starve our readers of interesting, if not wholly authenticated, news of Soviet developments, we have occasionally offered the cream of the "second-hand" information which has come our way.

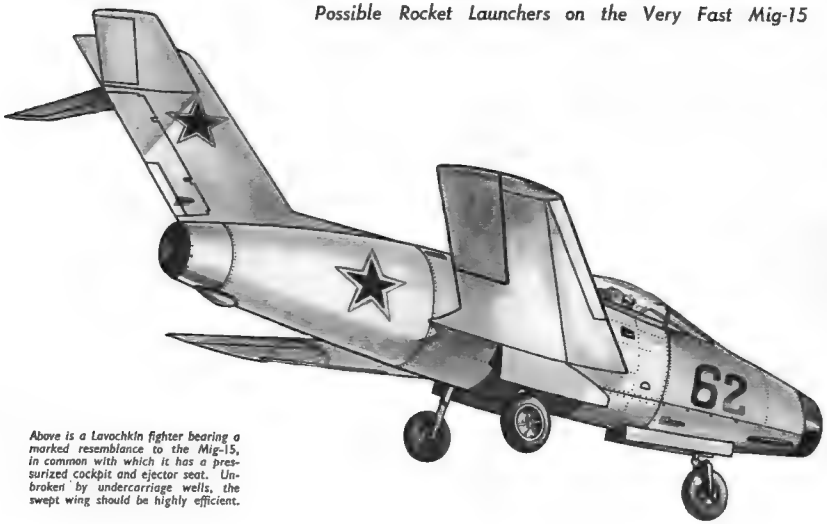
Thus, on these pages we present four drawings by a Dutch artist purporting to show four types of Soviet fighter. Those depicting the Mig-9 and Mig-15 are believed to be dependable representations of their subjects and include more detail than is common in such reconstructions. The drawing of the Lavochkin is technically less reliable, and that of the alleged twin-jet all-weather type is definitely suspect. The complete set, however, does betoken the formidable nature of the newest Soviet fighters, and it may be remarked that the performance of the Mig-15, deduced from earlier published impressions, seems to have been substantiated by reports of very high speeds attained by this type in combat with Shooting Stars and Panthers in Korea.

The Mig-15, with rocket-launching tubes—believed to be automatically loaded—attached low on the fuselage nose-section. Speed probably exceeds 650 m.p.h. by a comfortable margin.

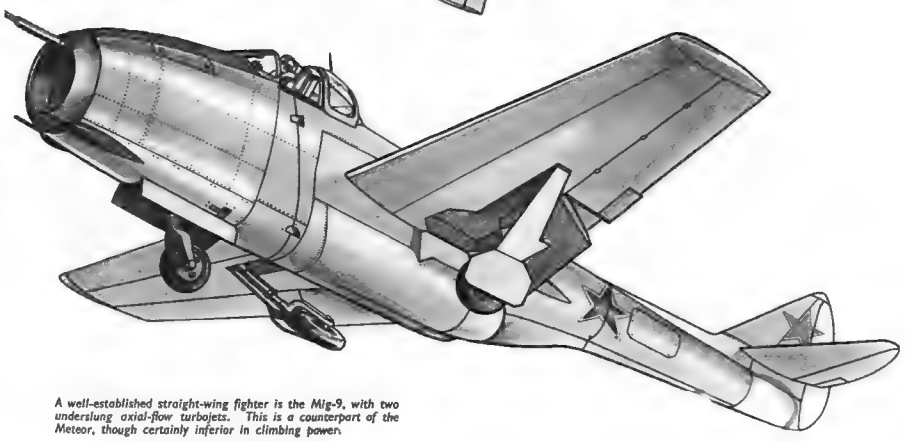


The twin-jet machine on the right is described as a Lavochkin all-weather fighter. Earlier sketches depicted a straight-wing version of a similar type, likewise a single-seater.





Above is a Lavochkin fighter bearing a marked resemblance to the Mig-15, in common with which it has a pressurized cockpit and ejector seat. Unbroken by undercarriage wells, the swept wing should be highly efficient.



A well-established straight-wing fighter is the Mig-9, with two underslung axial-flow turbojets. This is a counterpart of the Meteor, though certainly inferior in climbing power.

Martin
XB-51

Climax

HIGH ADV[illegible] MEN

AUGUST, 1953

THE MAN WHO BOUGHT MONTE CARLO

AROUND THE RACETRACK

BY JOHN GROTH

THE BLACK KILLER

25 CENTS

JET ACE BY GLENN D. KITTLER

Ezy-In

PORT-O-BIFF

PORTABLE TOILET

Recommended for
FALL-OUT SHELTERS
by Civil Defense
Leaders!

- BOATING
- CAMPING
- HUNTING
- FISHING
- TRAVELING

Folds Completely Flat

COMPLETE

$8.95

Extra Bags
$1.80 per dozen

GARELICK MFG. CO.

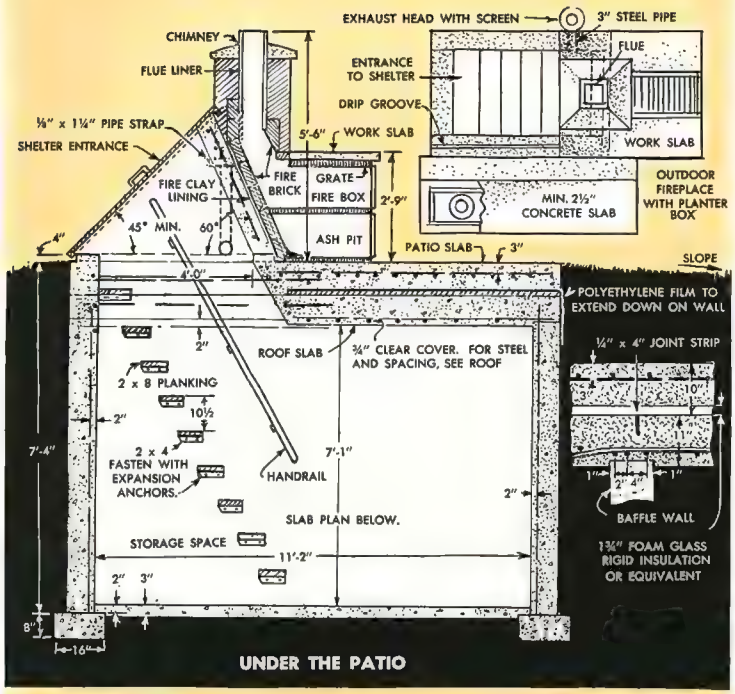
ST PAUL PARK MINN

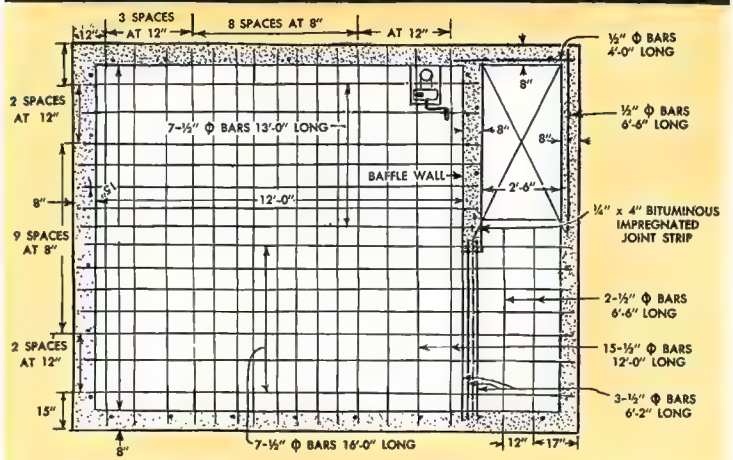
XR

You Can Build a Low-Cost Shelter Quickly

$30 . . . $97 . . . $280 — This can be the cost of materials for a family fallout shelter

NUCLEAR SCIENTISTS who have built shelters to protect their families against possible fallout radiation have, in many cases, put up simple, inexpensive structures that can be erected quickly. Following this example, *Popular Mechanics* presents on these pages the construction details of three previously unpublished plans prepared by the office of Civil Defense and one by a nuclear engineer. They include some of the low-cost and most rapidly-built shelters available.



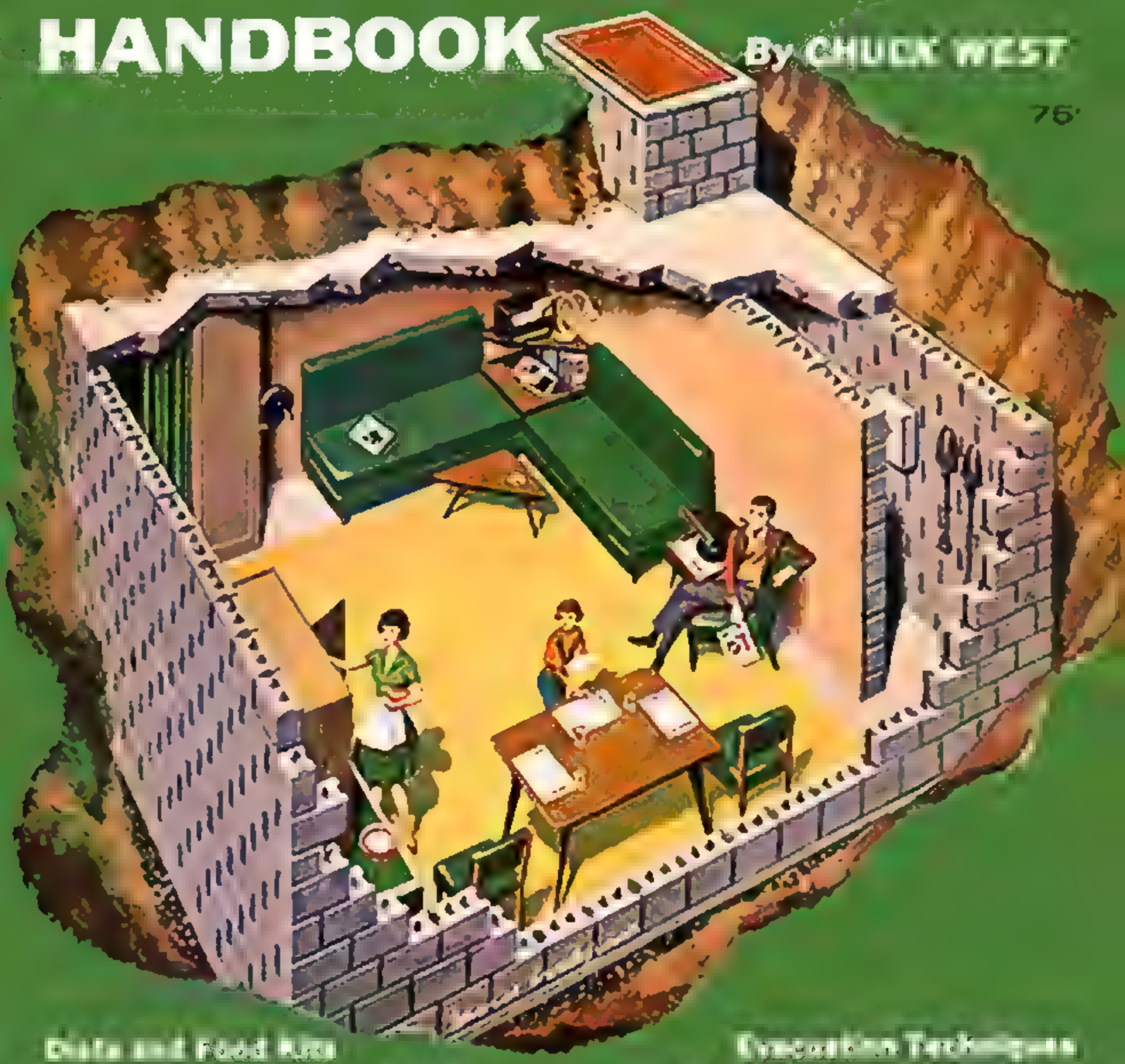


XR

FALLOUT SHELTER HANDBOOK

By CHUCK WEST

75¢



Data and Food Kits
Surviving an Atomic Attack
Underground Shelters You Can Build or Buy
Basement and Garage Shelters
Above-Ground Shelters
Medical Kits and First Aid
Fallout Detection Devices

The Teikoku Bank, Limited

Kawayacho, Hiroshima Japan.

May 22, 1950

To the Manager
The Mosler Safe Co.
Hamilton, Ohio, U. S. A.

1950 JUN 3 AM 10:17

Sir,

We consider it our great honour to inform you that The Teikoku Bank, the successor to The Mitsui Bank, had in 1925 when it's Hiroshima branch was newly built dared to set two vault doors made by your Hamilton Factory.

As you know in 1945 the Atomic Bomb fell on Hiroshima, and the whole city was destroyed and thousands of citizens lost their precious lives. And our building, the best artistic one in Hiroshima, was also destroyed, However it was our great luck to find that though the surface of the vault doors were heavily damaged, its contents were not affected at all and the cash and important documents were perfectly saved. The superiority of your goods are completely verified as truly told to the whole world in the American Bankers, the July 13th issue of 1946. Your products were admired for being stronger than the Atomic Bomb.

Since then about five years have elapsed. The building and doors of the vault have been completely repaired and we have started our business on the first of this month. Recently many tourists from the United States and other foreign countries have come to see our building and when we show them your vault we proudly explain to them how strong they were against the Atomic explosion.

We hereby wish to have a letter of congratulations and some souvenir to celebrate our opening business at our old office. We shall appreciate it as our utmost honour, and we believe it will do much to keep and promote a good will relation for the long future.

Yours very faithfully,

The Teikoku Bank Limited

T. Yoneto

Manager, Hiroshima Branch.

No. 6805
ATOMIC ENERGY
DISPOSAL CAR
LIONEL
LIONEL

MF, SM

S

R

R

M

MiG-21

R · KONTEJNER
R · POD

1/72

MF

XR

TIME

THE WEEKLY NEWSMAGAZINE

MAN OF THE YEAR

Name: American. Occupation: Fighting-man.

RUSSIAN TANKS

OUTSTANDING in number and effectiveness among the powerful ground armor used by North Korean forces in the opening phases of the Korean war was the Russian standard medium tank, the T-34, whose identity was fully authenticated by a number of captured examples. In the foreground above and to the right are two illustrations of it, with one cut away to show the interior arrangement. The T-34 has been used by the Soviet army for nearly 10 years, with the most modern types radically improved by a different type turret, a heavier gun and carrying a crew of five instead of four. It weighs about 34 tons and has a V-type 500-horsepower diesel engine that gives it a speed of 30 miles an hour. A heavier tank, not yet officially confirmed as the Joseph Stalin III, also was reported in the early action. Shown in the background above, the Stalin is the standard Russian heavy tank and an example of it crowns the Soviet war memorial in Berlin. It is described as one of the most powerful tanks in existence, weighing 60 tons—about 10 more than either the General Patton or the British Centurion—and mounting a long-barreled 122-mm. gun.

XR

MAJOR CARROLL COOPER, cold and exhausted after three days and nights without sleep, led his 360-man task force on hopeless chase of Reds through Yalu gorges. After Reds escaped into Manchuria, Cooper said disgustedly, "To fight a war in these parts, you need a squad of lawyers traveling right with the infantry."

CORPORAL E

STAR PERFORMER WITH PRECISION GUIDANCE

Motorola's precision engineering in the missile field has made a major contribution along with Jet Propulsion Laboratories in the development of Corporal E

navigational devices • radar • countermeasures • analog computers
communications equipment • digital computers • data transmission
data processing and presentation indicators
plotting systems • telemetering
remote control • servomechanisms
transistor circuitry • operations research
dynamic systems analysis • subminiaturization
solid state physics • semi conductor research • transistor development

carrier	*transmitters*
VHF	*receivers*
UHF	*multiplexing*
microwave	*systems*

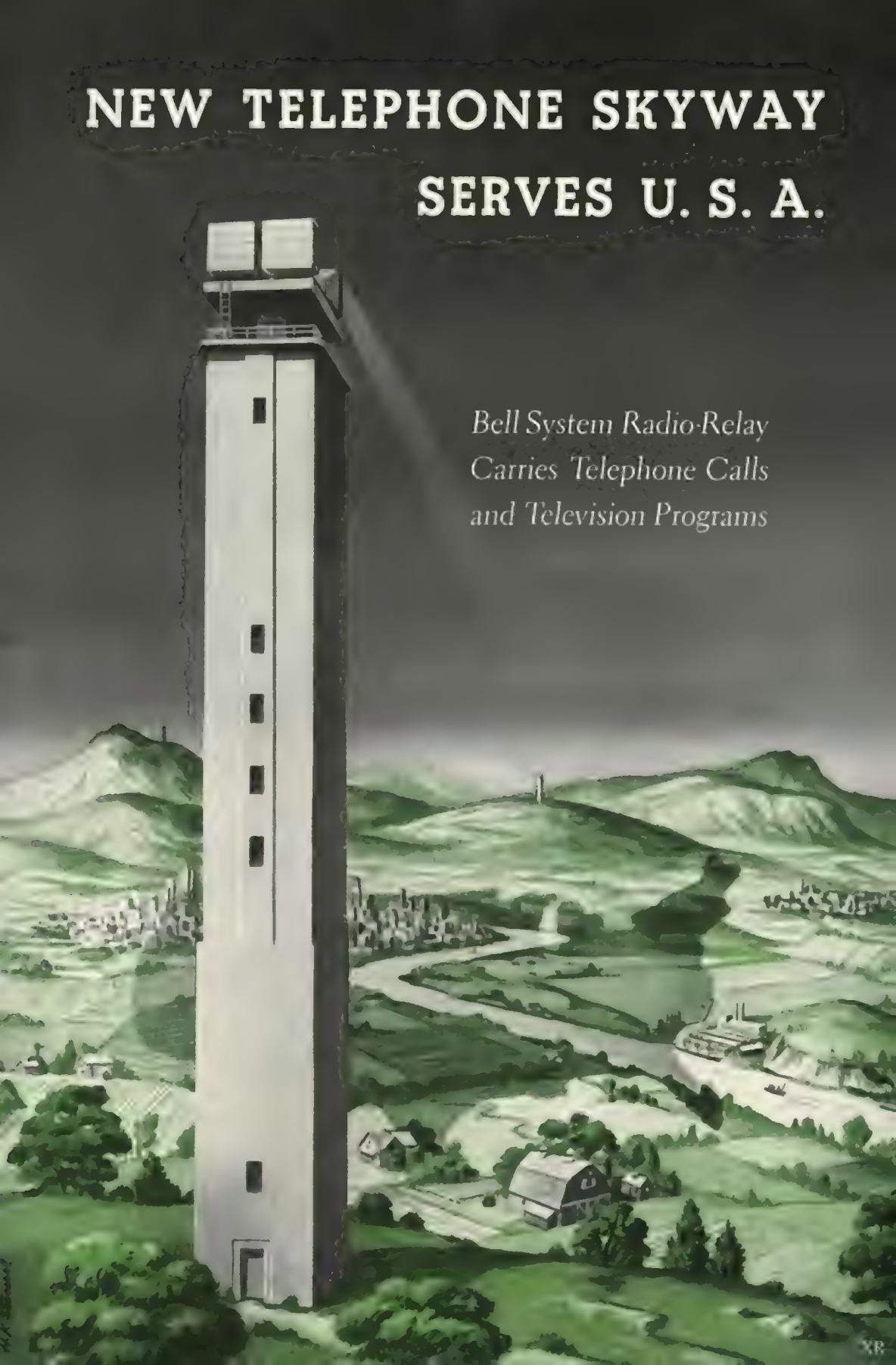
Positions open to qualified Engineers and Physicists

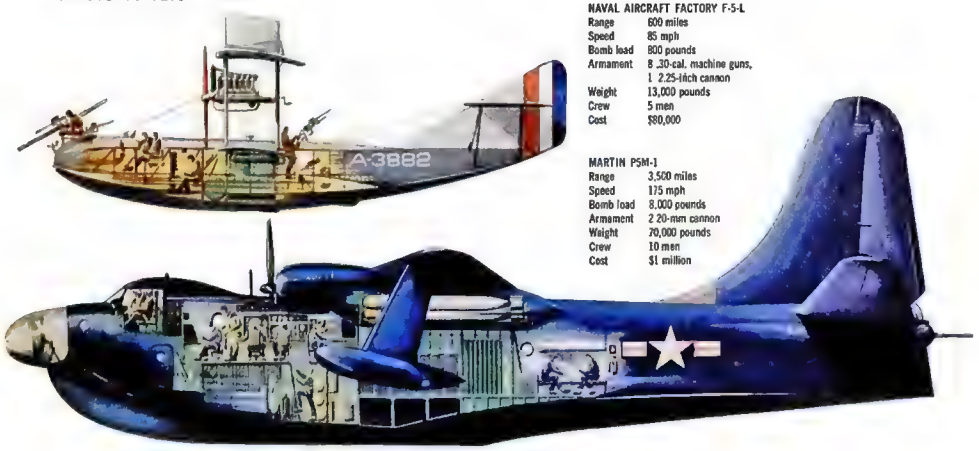
MOTOROLA

COMMUNICATIONS & ELECTRONICS DIVISION

5801 Augusta Blvd. • CHICAGO, ILL. • Laboratories • [illegible] Riverside, California

XR


NEW TELEPHONE SKYWAY
SERVES U. S. A.
Bell System Radio-Relay
Carries Telephone Calls
and Television Programs



NAVAL AIRCRAFT FACTORY F-5-L

Range	600 miles
Speed	85 mph
Bomb load	800 pounds
Armament	8 .30-cal. machine guns, 1 2.25-inch cannon
Weight	13,000 pounds
Crew	5 men
Cost	$80,000

MARTIN P5M-1

Range	3,500 miles
Speed	175 mph
Bomb load	8,000 pounds
Armament	2 20-mm cannon
Weight	70,000 pounds
Crew	10 men
Cost	$1 million

NAVY: FROM FLYING BOATS TO CARRIER JETS WITHOUT TAILS

The Navy's first interest in aviation, naturally, was in flying boats. Its F-5-L, developed from a design of Glenn Curtiss, was created to fight against the German U-boats. It was armed with a Davis cannon whose rearward blast would smash the plane's wing if the gunner was careless. With antisubmarine warfare being given a renewed high priority, the flying boat, now called a patrol bomber, is once again of first naval importance. Behind the search radar in the nose of the P5M (*above*) lies $124,000 worth of electronic sub-hunting gear.

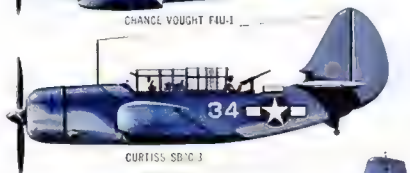
In the '20s and '30s the Navy developed a new type of ocean warfare built around the aircraft carrier. Many, including General Billy Mitchell and quite a few admirals, were skeptical of the worth of the flat tops. But even with small, slow biplanes (*below, left*) of limited range the carrier men of the late '20s proved their point in fleet maneuvers. In 1942 after Japanese carrier planes had knocked out the battleships of the U.S. Pacific fleet, it was the planes from the U.S. carriers that won the decisive battles of the Coral Sea and Midway. By 1944 the air groups (*below, right*) of the Essex-class carriers had closed in on Japan itself. With the colossal U.S.S. *Forrestal*, about to go under construction, the Navy will be able to deliver the atomic bomb from a carrier-based bomber supported by 700-mph carrier-borne jets.

BOEING F2B-1

CHANCE VOUGHT 02U-1

MARTIN T4M-1

CHANCE VOUGHT F4U-1



CURTISS SB2C-3

GRUMMAN TBF-1

FIRST STRIKING FORCE of the Navy's air arm had F2B fighter with two machine guns and top speed of 160 mph. O2U scout plane searched out targets for the torpedo-carrying T4M which had 650 mile range but only a 113-mph top speed.

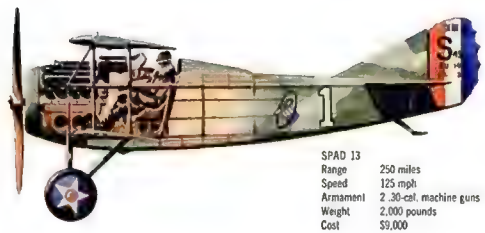
VICTORS IN THE PACIFIC flew from 35,000-ton Essex-class carriers. F4U-1 Corsair carried six machine guns, flew 300 mph. Attacking punch was in SB2C's 4,000-pound bomb load and TBF's 2,000-pound torpedo, both with 300-mile range.

LATEST CARRIER PLANES now in production are big and heavy, need large carriers like the projected 60,000-ton, $200 million carrier (*bottom, right*). AJ-1 bomber (*top*) has two piston engines and a jet in its tail, can carry the atomic bomb. Tailless fighters like the F7U Cutlass (*center*) are in 650-mph class and can escort bombers. Dive bombing, rocket and torpedo work is the job of the Douglas A2D Skyshark with its two turboprop engines working contra-rotating, three-bladed propellers.

FIGHTERS: ACES TO FLYING SCIENTISTS

Fundamentally the fighter plane is simply a flying gun platform. Although the armament of such a plane is of extreme importance, it has lagged far behind developments made in engines. Priority is now being given to air-to-air rockets which may soon replace machine guns and the automatic cannon. The engines necessary for supersonic speeds are now being developed and the Air Force expects fighter speeds of more than 1,000 mph within the next four years. Now in the design stage are the guided missiles which may be the pilotless fighters of the future.

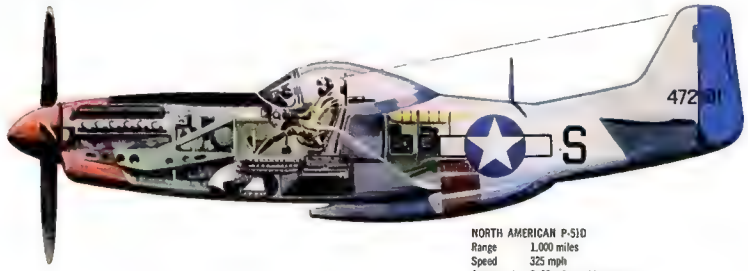
WORLD WAR I Virtually without military aviation in 1917, the U.S. was forced to purchase all its fighters from France and England. To fly them, men with less than 100 hours of training in the air were sent off to the front. But in such fighters as the 226-hp French Spad, flying without parachutes, pilots like Eddie Rickenbacker and Frank Luke fought a war of lone missions and dramatic dogfights. U.S. planes shot down 781 of the enemy and lost only 289. The American people found a host of new heroes in these "brigades of winged cavalry riding on gas-driven flying horses."



SPAD 13

Range	250 miles
Speed	125 mph
Armament	2 .30-cal. machine guns
Weight	2,000 pounds
Cost	$9,000

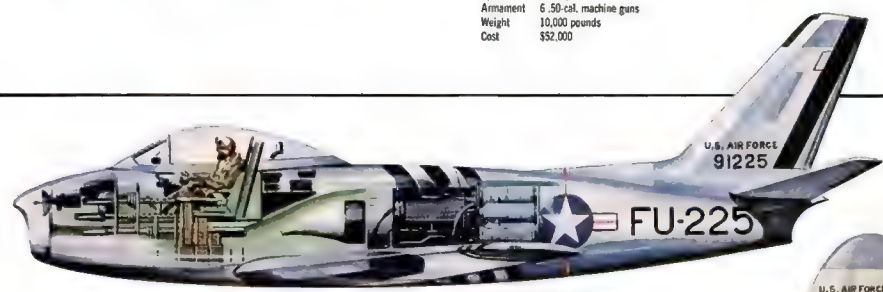
WORLD WAR II The fighter pilot of 1941-45 was a precision flier, meticulously trained to fight as a member of a team. By war's end he was equipped with some of the best and most versatile piston-engined fighters in the world. With self-sealing fuel tanks, cockpit armor for the pilot, a 1,520-hp Packard engine and six heavy machine guns mounted in the wings, the P-51 Mustang had to perform a variety of missions. It fought the enemy's fighters. It supported ground troops with rockets and bombs. With added wing tanks it flew escort for the bombers over both Berlin and Tokyo.



NORTH AMERICAN P-51D

Range	1,000 miles
Speed	325 mph
Armament	6 .50-cal. machine guns
Weight	10,000 pounds
Cost	$52,000

TODAY With the advent of the jet engine boosting speeds to double those of World War II and with the development of electronics and airborne radar, fighters are rapidly becoming planes flown by men more like scientists than pilots. The accuracy of the still-secret electronic gun sight in the badly outnumbered F-86 Sabres has accounted for many of their victories over the Russian MIG-15s in Korea. Bigger, faster F-86s with more powerful engines are now being tested. But for interception of high-altitude night bombers over the U.S. the Air Force is just getting into full production the twin-jet, two-man F-89 Scorpion, designed to track and shoot down a bomber that its pilot may never see. Bigger than many World War II bombers, it carries a radarman in the rear cockpit who locates and tracks the enemy plane and a pilot whose guns are aimed for him by an electronic "brain." The latest Scorpion, the F-89D, carries two huge, permanent wing tip tanks, filled not with fuel but with rockets aimed and fired by a new automatic aiming system.



NORTH AMERICAN F-86A

Range	1,000 miles
Speed	650 mph
Armament	6 .50-cal. machine guns
Weight	14,000 pounds
Cost	$240,000

NORTHROP F-89A

Range	1,000 miles
Speed	600 mph
Armament	6 20-mm cannon
Weight	32,000 pounds
Cost	$600,000

CONTINUED ON NEXT PAGE

THE BOMBERS: FROM ONE ENGINE TO TEN

The story of the bomber is the story of the airman's fight to establish himself on a par with the Army and Navy. In the bomber the airman claimed to have a weapon which could fly far beyond the battlefield to hit the enemy's means for making war—his factories, fuel, transportation net. How the Air Force developed such a plane is told in the statistics (*left*) for each bomber. The cost figures reflect the ever-increasing complexity of the planes and the equipment which they carry, such as the $67.85 bomb sight on the World War I DH-4, the $5,000 Norden bomb sight on the B-17 and today's K-1 radar bomb sight which weighs nearly a ton and costs about $250,000.

On Aug. 2, 1918 the only U.S.-produced warplane to reach the front in France went into action. It was the DH-4, British designed but powered with the 400-hp Liberty engine, made in the U.S. With DH-4s and other planes bought from England and France, the Air Service, as it was then called, dropped a total of 127 tons of bombs in some seven months of war—a total which could be carried by four B-36s.

The small U.S. air effort of World War I did produce a big man in U.S. aviation, the flamboyant, visionary General Billy Mitchell. To dramatize the bomber, he claimed it could destroy a battleship. On July 21, 1921, before an unbelieving group of admirals, Mitchell did it, sinking a captured German battleship in 20 minutes.

Although this feat did not win Mitchell's fight with the Army for an independent air force, the progress of the bomber did not stop. In 1932 the twin-engine B-10, a sleek, fast, all-metal plane without the struts and wires of its predecessors, was billed as "the world's fastest and most powerful" bomber. But the B-10's 600-mile range was too short and in the following year the Air Corps started its so-called Project A, the development of the long-range bomber.

In the design competitions which followed Boeing submitted revolutionary plans for a four-engine plane, and in 1935 the B-17 Flying Fortress made its first flight. But when World War II started four years later the Air Corps, held in check by economy-minded congresses and a ground-minded general staff, had only 13 B-17s. In the next five years the aircraft industry put the B-17 into mass production. In 1940 they produced 53, in 1944, 5,352. From $300,000 per B-17 in 1941 the price went down to $187,000 by war's end. The B-17s were modified many times. The G model shown here had increased bomb capacity and was studded with gun turrets.

For the great distances involved in the Pacific war, even the B-17's range was too short but, by 1944, the Army Air Forces had the B-29 ready for action. It had the range for the 3,500-mile round trip between the Marianas and Japan and 12 remote-controlled machine guns—a big improvement over the B-17's hand-operated guns. Its bomb bay was big enough to haul the first cumbersome atom bomb to Hiroshima.

By the end of World War II our bombers still needed overseas bases from which to attack an enemy in Europe or Asia. In 1946 the Convair B-36 gave the Air Force a plane which could attack any important target in the world from a base in the U.S. But with every major air force in the world converting its fighter force to jets, our few B-36s were too slow. Two jet engines have now been added to each wing tip to boost its maximum speed to 435 mph. To get even more speed, Convair is building an eight-jet bomber, the YB-60, which will resemble the XB-52. To lick the problem of range, the Air Force has given Convair a contract to build an atomic-powered bomber. General Electric and Pratt and Whitney are building two different types of atomic engines. When completed, this plane may be able to circle the globe nonstop.

DE HAVILLAND DH-4
Range 300 miles
Speed 100 mph
Bomb load 450 pounds
Armament 4 .30-cal. machine guns
Weight 4,000 pounds
Crew 2 men
Cost $11,500

MARTIN MB-2
Range 400 miles
Speed 90 mph
Bomb load 1,000 pounds
Armament 5 .30-cal. machine guns
Weight 12,000 pounds
Crew 3 men
Cost $35,000

MARTIN B-10
Range 600 miles
Speed 185 mph
Bomb load 2,200 pounds
Armament 3 .30-cal. machine guns
Weight 14,400 pounds
Crew 4 men
Cost $65,000

BOEING B-17G
Range 2,000 miles
Speed 195 mph
Bomb load 6,000 pounds
Armament 13 .50-cal. machine guns
Weight 63,000 pounds
Crew 10 men
Cost $250,000

BOEING B-29
Range 3,500 miles
Speed 235 mph
Bomb load 10,000 pounds
Armament 12 .50-cal. machine guns
Weight 135,000 pounds
Crew 10 men
Cost $750,000

CONVAIR B-36D
Range 10,000 miles
Speed 300 mph
Bomb load 10,000 pounds
Armament 16 20-mm cannon
Weight 360,000 pounds
Crew 15 men
Cost $3.5 million

CONTINUED ON NEXT PAGE

XR

From Struts to Jets

DRAWINGS TELL HISTORY OF U.S. MILITARY AVIATION FROM WORLD WAR I TO THE PRESENT

PAINTED FOR LIFE BY JOHN T. McCOY JR.

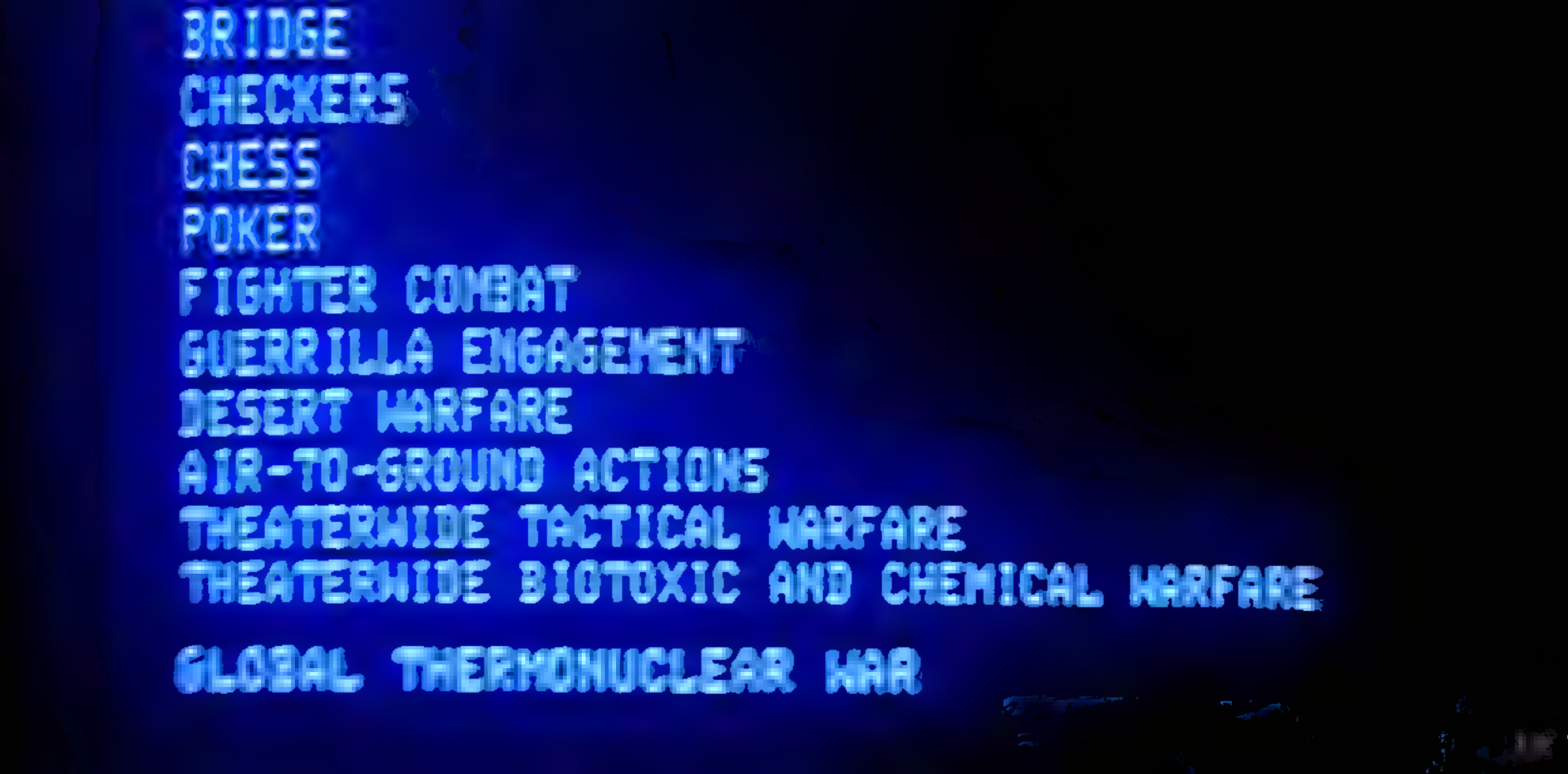
At 4 a.m. one morning last November at Boeing's Seattle plant a huge tarpaulin-covered shape was rolled out to the test areas under armed guard. The shape under the canvas was that of the Air Force's newest and world's biggest jet bomber, the XB-52 (*above*), a 350,000-pound plane built on lines of a jet fighter. In the drawing above, Artist John T. McCoy shows the power and beauty of the plane which is the culmination of 35 years of progress in U.S. military aviation. In the drawings on the following pages, McCoy traces the ancestry of the XB-52 back to the wood-and-fabric biplanes of World War I, then shows the developments of the fighter from the Spads bought from France in 1918 to today's 700-mph jets and illustrates how far the Navy has come from its 85-mph flying boats.

The untested XB-52, still far from the production line, will be of no immediate help to the Air Force. It will do nothing to alleviate the frightening shortage of every type of combat plane, which the lagging rearmament program has brought about. But when, in three or four years, it is in mass production, the XB-52 should be an extraordinary weapon. Into it will go the top secret devices of the Air Force. In its nose will be a radar bomb sight designed to hit targets with visibility zero from altitudes higher than 10 miles. Under its wings are slung eight newly developed J-57 turbojets whose thrust, equivalent to about 80,000 hp, will drive the XB-52 at around 550 mph. In its fuselage are immense fuel tanks which, fed by flying tankers, will make the XB-52 an intercontinental bomber.

CONTINUED ON NEXT PAGE

Mount Weather Special Facility

XR


BRIDGE
CHECKERS
CHESS
POKER
FIGHTER COMBAT
GUERRILLA ENGAGEMENT
DESERT WARFARE
AIR-TO-GROUND ACTIONS
THEATERWIDE TACTICAL WARFARE
THEATERWIDE BIOTOXIC AND CHEMICAL WARFARE
GLOBAL THERMONUCLEAR WAR

RANGE
X10
X1
OFF
GS-3CD
FCDA ITEM NO. CD-V-700
SER. NO.
MFD. FOR FCDA BY
MODEL NO. GS-3CD

10¢ IND
JAN. No. 5

ATOMIC ATTACK!

I'LL FIGHT IN TOMORROW'S WAR

"Terrible Turtle" Studied by Army

ITS mighty firepower could make this one-man midget tank the scourge of battlefield or beachhead. It is now being considered by experts of Army Ordnance.

Scurrying low over the ground at 30 miles an hour, its lone commando operator would trigger two fire-spitting .30-caliber machine guns. Above him as he lay on his stomach peering through front- and rear-view periscopes, would be a rocket launcher with 13 packages of explosive. And his steel turtle shell, designed to deflect any enemy missiles, would be rimmed around with 650 ports holding standard shotgun shells

OF COURSE, IN ANY TOTALITARIAN STATE, FREEDOM OF EXPRESSION IS NOT A RIGHT...

COMRADE SMITH! YOU HAVE **FAILED** TO PRINT YOUR QUOTA OF **LIES** AND **PROPAGANDA!**

B-BUT COMMISSAR! I'VE ALWAYS FOLLOWED THE **"FIVE W'S"** OF **HONEST JOURNALISM** – WHO, WHAT, WHEN, WHERE, AND WHY?

A **COMMUNIST** PAPER ALWAYS FOLLOWS THE **"FIVE D'S"...**

STALIN ~~HUMANTVILLE~~ TELEGRAF ~~TELEGRAPH~~

TOM SMITH, EDITOR

...DECEIT, DECEPTION, DERISION, DESTRUCTION, AND DON'T EVER TELL THE TRUTH!

SPLASH!

...BUT A CRIME!

OUR PRECIOUS AMERICAN HERITAGE WAS PUT TO THE TORCH....

DA!DA! NOW THROW IN ALL THE **VOTING BOOTHS** AND THE **WRIT OF HABEUS CORPUS,** TOO! ALSO, MAKE A NOTE TO **CANCEL CHRISTMAS!**

THEN, LET'S KNOCK OFF AND COMMIT SOME **ATROCITIES!**

...3 LIVES

NONE DARE CALL IT TREASON

John Birch Society Blue Book

MASTERS OF DECEIT

CITIZENS WERE FORCED TO CONFESS TO TRUMPED-UP "WAR CRIMES"...

PSSST! DOUGIE! WHAT DOES "GERM WARFARE" MEAN?

...AND THOSE WHO REFUSED WERE SUBJECTED TO THE MOST INHUMAN FORMS OF "BRAINWASHING!"

...AND THEN MY SISTER-IN-LAW AND I DROPPED SIXTY DIPHTHERIA BOMBS ON A NORTH KOREAN ORPHANAGE....

ALWAYS WATCHED, ALWAYS OVERHEARD, THE JONES'S LIFE WAS A NIGHTMARE COME TRUE....

POP! POP! THEY SHOT **FRECKLES!**

I'M SORRY SUPPER'S LATE, BUT THESE MICROPHONES TAKE LONGER THAN I THOUGHT!

THE FILTHY **SWINE!**

THEY HAVE NO SENSE OF DECENCY...

I HEARD THAT, **DOGS!**

BUDDA BUDDA

...THEY'RE JUST **AARRGH!**... NOT HUMAN...

THE STATE NO LONGER HAS ANY **USE** FOR YOU, **COMRADE BILL JONES!**

BUT TOO LATE, MY BROTHER HAD LEARNED HIS FIRST LESSON IN COMMUNISM....

AS YOU SEE, COMRADE JONES, IT IS SIMPLE TO JOIN THE COMMUNIST PARTY, BUT IT IS *NOT* SO EASY *GETTING OUT!*

HA! HA! HA! HA!

UUH!

"HOPPED UP" ON TRUTH SERUM AND SUBJECTED TO RELENTLESS INDOCTRINATION, FRED SOON SWALLOWED THEIR BIG RED LIE—HOOK, LINE AND SINKER....

DID YOU ENJOY TODAY'S LESSON, COMRADE JONES?

THE ВПКА

INTERMEDIATE SUBVERSION PART II

END УНЗМ!

VERY MUCH, COMRADE CERNIK. SAY, UH, YOU WOULDN'T HAVE ANY MORE OF THAT, UH, *TRUTH SERUM* LEFT, WOULD YOU?

AT FIRST, EVEN I DIDN'T NOTICE THE SUBTLE CHANGE IN FRED'S BEHAVIOR...

ВПЕРЕД, К ПОБЕДЕ КОММУНИЗМА

ER- NO THANKS, BILL. "THE WILL OF THE STATE CANNOT BE THWARTED BY THE DECADENT PURSUIT OF BURGEOIS INDIVIDUAL HAPPINESS.

THE THOUGHTS OF CHAIRMAN MAO

THE EAST IS RED

TRUTH SERUM

HEY THERE, BOOKWORM! HOW 'BOUT GETTING SOME *FRESH AIR* AND TOSSING THE PILL WITH TOMMY AND ME?

DAS CAPITAL

THE COMMUNIST MANIFESTO

DECLINE of the WEST

SAY! THESE GUYS MARX AND ENGELS ARE REALLY *ON THE BEAM!*

BUT MY OWN BROTHER WAS NOW JUST ANOTHER MINDLESS COG IN THEIR MACHINE!

BOMB SHELTERS ARE A FASCIST PLOT!

EACH SEX IN SCHOOLS!

FOOEY ON THE GROUND OBSERVER CORPS

FREE ALGER HISS

DOWN WITH CHIANG

FREE GET OUT OF KOREA

USING THE OLD COMMUNIST PLOY OF "CORRUPT AND CONQUER," THEY CLEVERLY INFILTRATED THE LOCAL CAMPUS...

C'MON, GANG! *FORGET* THAT AMERICAN HISTORY TEST TOMORROW! FIRST, TRY SOME OF THESE "*REEFERS*," THEN LET'S GO TO THE *BAD* PART OF TOWN AND JITTERBUG TO *DEGENERATE BE-BOP MUSIC* UNTIL *ALL HOURS!*

NEAT!

SWELL!

KEEN.

GOSH, CAN WE?

BEAT STATE!

PLEASANTVILLE U.

ATC

FRANK

I GUESS FRED THOUGHT PLEASANTVILLE OWED HIM A LIVING, AND UNDERSTANDABLY, HE DIDN'T HAVE MUCH LUCK....

I'D LIKE TO HELP YOU, FRED, BUT WHEN I TOOK YOU ON AS A PAPERBOY YEARS AGO AND THE PETTY-CASH BOX DISAPPEARED...

O.K., TOM, I CAN TAKE A *HINT!* YOU'RE JUST LIKE *EVERYBODY ELSE* IN THIS *LOUSY DUMP!*

EDITOR

THANKS A *LOT,* PLEASANT-VILLE! THANKS A LOT, *AMERICA!* THANKS FOR *NOTHING!*

BANG!

PRAVDA

I DON'T BLAME YOU FOR GETTING STEAMED UP, PAL! THIS COUNTRY IS HANDING YOU A *RAW DEAL!*

HUH? WHO'RE *YOU?!*

JUST SOMEBODY WHO DOESN'T LIKE TO SEE THE "LITTLE GUY" GET *PUSHED AROUND!* YOU KNOW I HAPPEN TO HAVE SOME FRIENDS WITH BEEFS *JUST LIKE YOURS!* WOULD YOU LIKE TO MEET THEM?

COUNT ME *IN!* I'M *FED UP TO HERE!*

THAT EVENING, FRED MET A LOT OF NEW "FRIENDS"....

COMRADES! PERMIT ME TO INTRODUCE A NEW DUPE — ER, I MEAN *TOVARICH* INTO OUR PARTY CELL!

WHAT TH—

WE COVER THE EARTH

ACME FUR STORE

SOVIET LIFE

DAILY WORKER

PRAVDA

THE NEW REPUBLIC

"COMRADES"? "PARTY CELL"? HEY, WHAT GIVES? YOU AND YOUR FRIENDS ARE NOTHING BUT A...

BUNCH OF *C-COMMIES!*

"IT CAN'T HAPPEN HERE... IT CAN'T HAPPEN *HERE!*" THAT'S WHAT BILL JONES KEPT TELLING HIMSELF, UNTIL ONE DAY HE AWOKE TO A...

RED NIGHTMARE!

I SUPPOSE MY HOMETOWN IS PRETTY ORDINARY AS PLACES GO...

E. MAIN ST.

CHESTNUT ST

WELCOME TO PLEASANTVILLE U.S.A.
POPULATION: 3,564
SPEED LIMIT 25 MPH

...BUT IT'S A FRIENDLY TOWN, AND FOLKS AROUND HERE LIKE IT FINE...

MORNIN', BILL! YOUR BROTHER FOUND WORK YET?

NOT YET, SAM. THANKS.

SAM'S MILK

...EVERYBODY, BUT MY BROTHER FRED, THAT IS....

NO WORK IN *THREE WEEKS!* NOBODY IN THIS TOWN WANTS TO GIVE A GUY A BREAK!

BUT FRED, YOU'VE ONLY JUST LEFT THE, UH... HOSPITAL...

HELP-WANTED

HAVING FRED STAY WITH US WAS SOMETIMES DIFFICULT, BUT HE NEEDED HELP, AND HE *WAS* MY BROTHER.

"HOSPITAL!" *HA!* WHY DON'T YOU SAY *NUT HOUSE* LIKE EVERYBODY ELSE IN THIS CRUMMY BURG! JUST BECAUSE I DON'T HAVE A BIG-DEAL *WAR RECORD* LIKE *BILL*, I CAN'T GET A *FAIR SHAKE!*

Chip Martin
COLLEGE REPORTER

SEES A "TALKING BRAIN" FOR GUIDED MISSILES

MAN! HOW JOE CONTROLS THOSE LONG PASSES!

BELL TELEPHONE IS A SPECIALIST IN CONTROLLING LONG PASSES, TOO—6000 MILE MISSILE PASSES. IN FACT, THAT'S MY NEXT STORY.

NEXT DAY AT BELL TELEPHONE LABORATORIES, WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT.

MORNING, SIR. I'M CHIP MARTIN, FROM THE FRANKLIN TECH NEWS.

GLAD TO SEE YOU, CHIP. UNDERSTAND YOU WANT TO FIND OUT HOW OUR AIR FORCE CAN GUIDE A WAR HEAD A QUARTER OF THE WAY AROUND THE WORLD. WELL, LOOK HERE...

THIS "VOICE BOX" IS ONE OF THE KEYS TO A NEW GUIDANCE SYSTEM THAT OUR SCIENTISTS AND ENGINEERS DEVELOPED. THE BOX RIDES IN THE MISSILE AND DURING THE GUIDED FLIGHT, IT KEEPS "TALKING" TO A MASTER CONTROL STATION ON THE GROUND. IT HELPS REPORT SPEED, POSITION AND DIRECTION.

CAN THE MASTER CONTROL CENTER TALK BACK TO THE MISSILE?

YOU BET. NOT ONLY TALKS, BUT GIVES IT ORDERS! THAT MEANS REALLY HIGH ACCURACY. IT'S LIKE A GIANT HAND STEADYING THE MISSILE ON COURSE!

CHIP LEARNS THAT EVERY TARGET IS A MOVING TARGET, BECAUSE OF SPINNING OF THE EARTH... BUT THE NEW BELL LABORATORIES GU CONTROL ADJUSTS THE MISSILE TO THIS SPIN...

YOU SAY THIS SYSTEM HAS ALREADY GUIDED THE NEW TITAN AND THE THOR-ABLE?

VERY SUCCESSFULLY. IT WILL WORK WITH OTHER MISSILES, TOO, AS WE GET 'EM. IT'S A TREMENDOUSLY IMPORTANT SCIENTIFIC AND ENGINEERING FEAT, CHIP. THIS COMPLEX UNIT, SO IMPORTANT TO OUR DEFENSE

HERE, BILL, REA
REALLY FANTASTI
YOU'LL SEE WHY
TELEPHONE SCIE
AND ENGINEERS A
FAMOUS MISS
ROCKET GU
EXPERT

BELL TELEPHONE

CHURCHES WERE CLOSED.

THESE VESSELS ARE PURE GOLD! THEY'LL BRING A HIGH PRICE!

NOW THEY CAN BE USED TO WORSHIP THE REAL GOD---- COMMUNISM!

NOR WAS THE FINAL AIM OF COMMUNISM FORGOTTEN.

OUR STRENGTH IS GROWING IN RUSSIA.

YES, COMRADE. BUT WE MUST REMEMBER THAT WE WILL NEVER BE WHOLLY SUCCESSFUL UNTIL OUR CONTROL IS SPREAD ALL OVER THE GLOBE.

A RED GROUP CALLED THE "COMINTERN" WAS FORMED.

YOU WILL HEAD THE GROUP, COMRADE ZINOVIEV. ITS PURPOSE WILL BE TO SPREAD COMMUNISM IN FOREIGN LANDS BY ANY MEANS NECESSARY.

COMMUNIST PARTIES ARE SPRINGING UP ALL OVER THE WORLD. I WILL SEE THAT THEY TAKE ORDERS FROM US!

ZINOVIEV'S MEN BEGAN THEIR JOURNEYS TO FOREIGN LANDS.

I AM LEAVING FOR FRANCE TOMORROW. I HAVE INSTRUCTIONS TO CARRY TO COMMUNIST HEADQUARTERS IN PARIS.

I'M BOUND FOR CANADA. I'M SUPPOSED TO SPREAD COMMUNIST IDEAS AMONG THE LABOR LEADERS THERE.

THE UNITED STATES ALSO WAS ON THE LIST.

WELCOME TO CHICAGO!

I HAVE SPECIAL ORDERS FROM MOSCOW TO TAKE CHARGE OF COMMUNISTS HERE AND TRAIN THEM TO OVERTHROW DEMOCRACY.

ALL OVER THE EARTH, A NETWORK OF COMMUNIST PARTIES WAS DEVELOPED UNDER MOSCOW'S DIRECTION. MEMBERS WERE TRAINED TO OVERTHROW THE GOVERNMENTS OF THE COUNTRIES IN WHICH THEY LIVED BY ANY MEANS, INCLUDING MURDER.

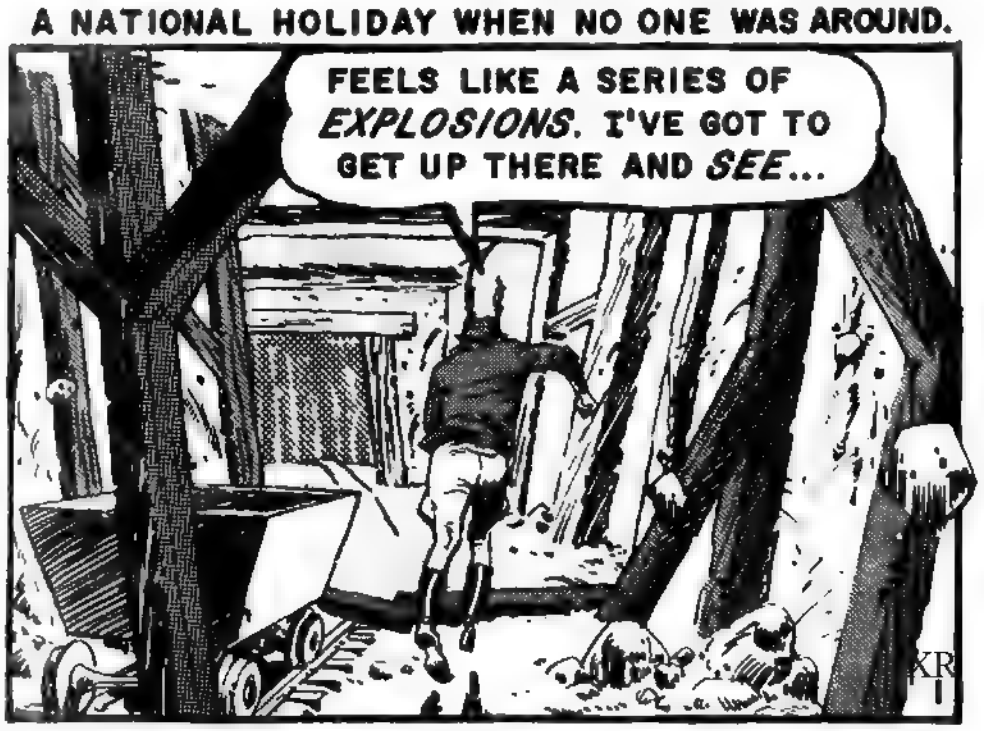
XR

Child of TOMORROW

THIS IS THE WAY IT BEGAN. THE FIRST WAVE OF BOMBERS HIT AT 0900, JULY 4TH, 1954. THE AMAZING THING ABOUT IT WAS THAT NO ONE *DREAMED* THEY HAD SO *MANY* ATOM BOMBS...

I WAS 750 FEET UNDERGROUND WHEN THE ATTACK TOOK PLACE. I'D GONE DOWN INTO THE TIMKO LEAD MINE NEAR MY HOME...

I WAS AN EAGER BEAVER IN THOSE DAYS... A STUDENT MINING ENGINEER. I'D FIGURED I COULD LEARN A LOT BY GOING DOWN INTO THE MINE ON A NATIONAL HOLIDAY WHEN NO ONE WAS AROUND.



FIRST U.S. JETLINER

TIME

THE WEEKLY NEWSMAGAZINE

BOEING'S PRESIDENT ALLEN

After the bombers, a race against the sun.

U S AIR FORCE
U S AIR FORCE
U S AIR FORCE

AUTOMATED
RAIL WAY
UNION
CENTR
UC
JJ12000G

THERE IT IS -- THE MOST RADIOACTIVE ELEMENT EVER CREATED BY SCIENCE!
BE CAREFUL REMOVING THE LEAD ENCASEMENT!
XR

strike!

Carrier Task Force...
Sunday Punch of Your New Air Navy...
Helps Defend America's Freedom

Strike!...a carrier strike against enemy forces is one of our most spontaneous and devastating weapons ...a potent force for peace in a troubled world.

Strike!...carrier task forces, teamed with long range, land-based Air Power, patrol the seas ready to deliver shattering destruction when and where needed.

Strike!...your New Air Navy is jet propelled. Aircraft like the Chance Vought F7U-3 *Cutlass* arm mobile carrier forces with terrific power. Power that helps carry out your Navy's vital mission: control of the seas that cover 70% of the world.

Navy Fliers Challenge the Jet Frontier
Action, adventure...fellowship, prestige... and priceless training that fits you for the challenge of the new jet age...all wait for you as a Navy flier. If you are 18-25, and single, visit your nearest Naval Air Station or write NAVCAD, Washington 25, D.C.

CHANCE VOUGHT AIRCRAFT
INCORPORATED · DALLAS, TEXAS

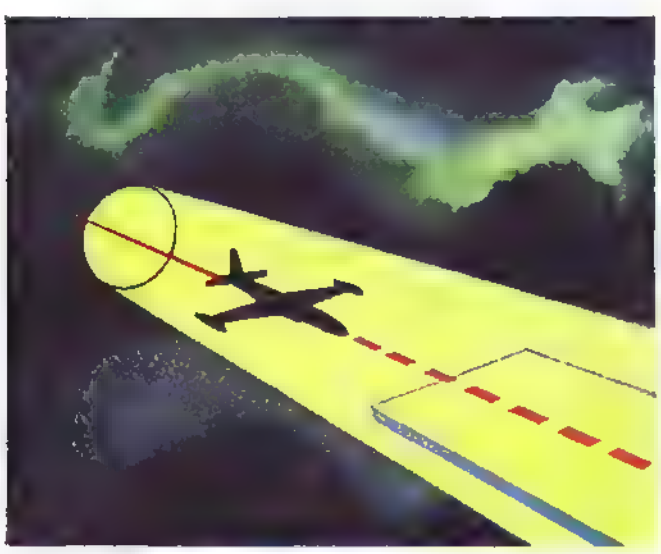
DESIGNER AND BUILDER OF HIGH PERFORMANCE MILITARY AIRCRAFT SINCE 1917

XR

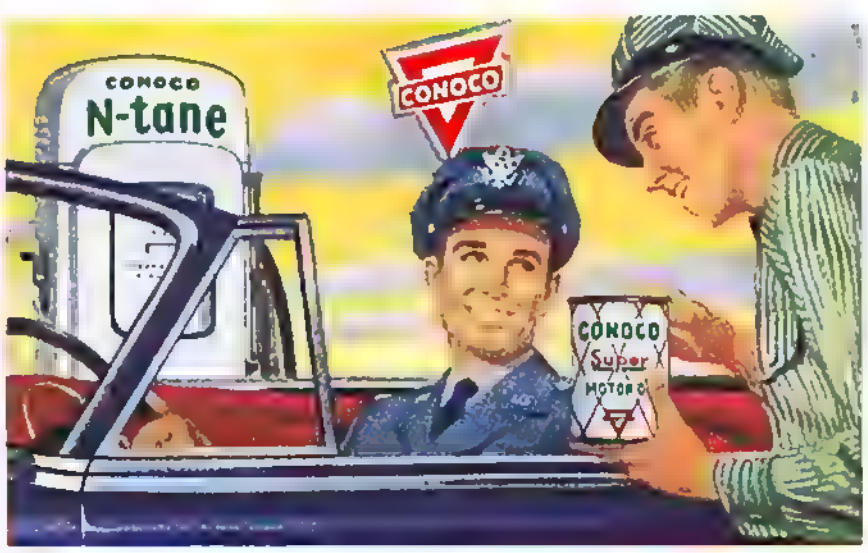
INFORMATION COURTESY LEAR, INC.

Pigmy Co-Pilot!

1. **Suppose enemy bombers** approach, through a raging storm, to bomb an American city by radar. Now, despite the weather, our jet fighters can take off, intercept the formation, and save the city. And thanks to a 36-pound automatic jet pilot, the flyers and their planes will return safely to base through the heavy overcast.



2. **An Air Force General** has called the tiny pilot the core of the air defense of America! Thus, electronic engineers have contributed to the protection of your home. In quite another way, petroleum engineers have contributed to the protection of your *car*, by developing Conoco Super, the new motor oil that fights winter's rasping wear.



3. **50,000 Miles—No Wear!** After a 50,000-mile road test, *with proper drains and regular care*, engines lubricated with Conoco Super Motor Oil showed *no wear of any consequence:* in fact, an average of less than one one-thousandth inch on cylinders and crankshafts. Gasoline mileage for the last 5,000 miles was actually 99.77% as good as for the first 5,000. Proof that Conoco Super, with its OIL-PLATING, *can* keep your new car *new!*

Now in its 76th year, Continental Oil Company is still a leader in oil research and a pioneer in oil-perfecting additives, with more than 100 patents on discoveries that improve performance and lengthen the life of your car.

©1951 CONTINENTAL OIL COMPANY

CONVAIR
NAVY

on guard . . . the NIKE HERCULES

To guard our cities and other vital areas the Army's new Nike is more powerful than ever before.

Designated Nike Hercules, the ground-to-air missile maneuvers with pin-point accuracy at extremely high altitudes to intercept today's most advanced aircraft.

The range and other details of the Nike Hercules are secret. But to propel the lethal new Nike at supersonic speed to its target, Army Ordnance and Douglas Aircraft Co. chose an entirely new power plant for the missile proper—a solid propellant rocket system developed by Thiokol Chemical Corporation, one of the leaders in solid propellant engines.

Thiokol®

CHEMICAL CORPORATION

TRENTON, N. J. • BLTON, MD. • HUNTSVILLE, ALA.
MOSS POINT, MISS. • MARSHALL, TEXAS • BRIGHAM CITY, UTAH

*Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rocket propellants, plasticizers and other chemical products.

US
XR

years to design and produce them. To *keep* them best, there must be uninterrupted, year-in-year-out development and production. Only such a sustained program can make and keep American Air Power an effective instrument for peace.
USAF
UNITED STATES AIR FORCE

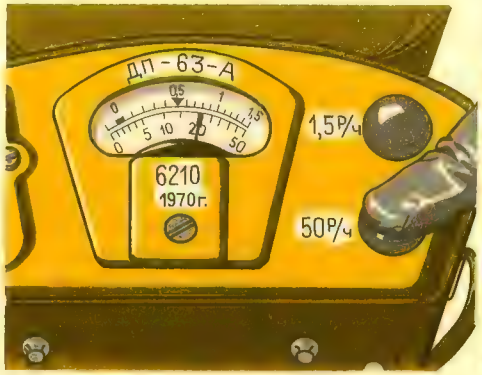
7. Newest long-range U. S. Air Force bomber is Boeing's sleek B-52, a 150-ton giant of unrivaled performance. Its engines are Pratt & Whitney Aircraft J-57s.

PM XR

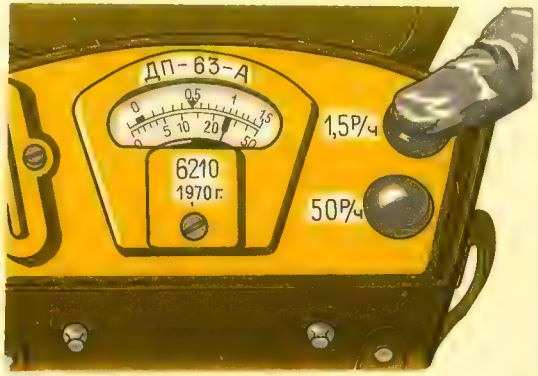
РАБОТА С ИНДИКАТОРОМ РАДИОАКТИВНОСТИ ДП-63-А

В походном положении прибор носят на ремне через левое плечо.

При измерении уровней радиации прибор располагается на высоте 0,7–1 м от обследуемой поверхности.

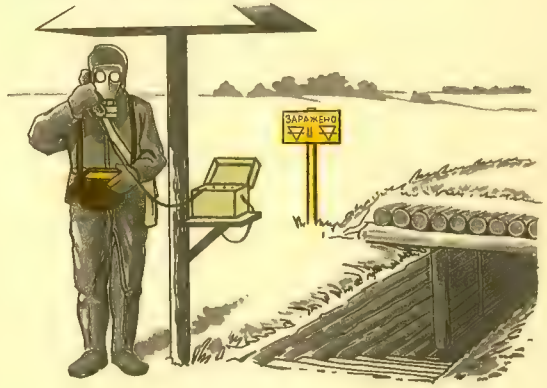


Измерение начинают со второго поддиапазона, нажав кнопку "50 Р/ч". По нижней шкале производят отсчет уровня радиации. При положении стрелки, указанном на рисунке, уровень радиации равен 20 Р/ч.



При малых уровнях радиации измерение производят на первом поддиапазоне путем нажатия кнопки "1,5 Р/ч". Отсчет ведут по верхней шкале. При положении стрелки, указанном на рисунке, уровень радиации равен 1 Р/ч.

Обнаружение бета-излучения производится на первом поддиапазоне при нахождении прибора на высоте 20–30 см от обследуемой поверхности. Делают два замера: первым замером определяется уровень радиации гамма-излучения, вторым (производимым при нажатой кнопке заслонки) – уровень радиации суммарного бета-, гамма-излучения.



Обнаружив и измерив радиоактивное заражение, разведчик немедленно докладывает об этом своему начальнику.

XR

Авторы А.П. Дуриков, М.Т. Максимов
Художник Н.Б. Ресянский
Редактор И.К. Свешникова
Художественный редактор В.К. Коврижных

© Стройиздат, 1983

Д 5101020000 – 1409 без объявл.
047 (02) – 83

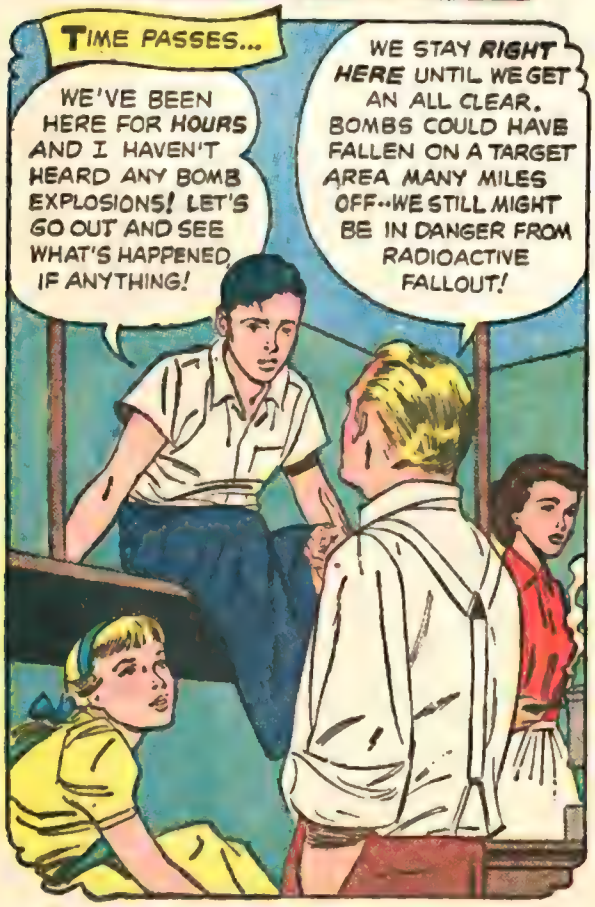
Москва. Стройиздат. 1983
Согласовано со Штабом гражданской обороны СССР

Подписано в печать 26.04.82. Формат 60х90 1/4. Бумага офсетная.
Печать офсетная. 0,25 п. л. Тираж 100000 экз.
Договор АП XУ1-9053. Заказ 540. Цена 10 к.

Тульская типография Союзполиграф

THANK GOODNESS, YOU CHILDREN ARE BACK!
SWITCH ON THE RADIO, JIM!

ATTENTION, PLEASE! THIS IS A NATIONAL EMERGENCY! THE AIR FORCE HAS ANNOUNCED THAT ENEMY AIRCRAFT ARE APPROACHING THIS COMMUNITY. AN ATTACK IS IMMINENT. GO TO THE NEAREST AVAILABLE SHELTER AND STAY THERE! THIS IS NOT A TEST! THIS COMMUNITY MAY BE UNDER ENEMY AIR ATTACK WITHIN MINUTES. GO QUICKLY BUT CALMLY TO THE NEAREST SHELTER. TAKE A PORTABLE RADIO AND EMERGENCY FOOD WITH YOU, IF POSSIBLE. OBEY YOUR AUTHORITIES. FURTHER INSTRUCTIONS WILL COME TO YOU AT 640 OR 1240 ON YOUR RADIO DIAL. THIS STATION IS NOW LEAVING THE AIR. KEEP YOUR RADIO TUNED TO 640 OR 1240.

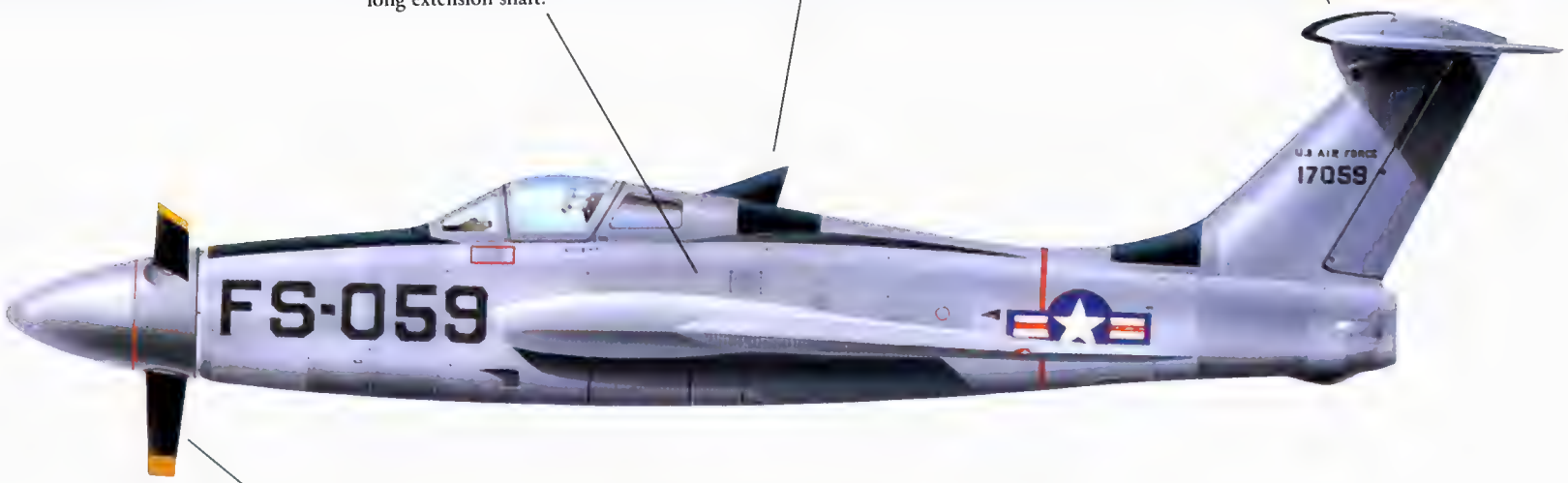

TIME PASSES...
WE'VE BEEN HERE FOR HOURS AND I HAVEN'T HEARD ANY BOMB EXPLOSIONS! LET'S GO OUT AND SEE WHAT'S HAPPENED IF ANYTHING!
WE STAY RIGHT HERE UNTIL WE GET AN ALL CLEAR. BOMBS COULD HAVE FALLEN ON A TARGET AREA MANY MILES OFF--WE STILL MIGHT BE IN DANGER FROM RADIOACTIVE FALLOUT!

JUST WHAT IS THIS FALLOUT, ANYWAY, DAD?
FALLOUT IS WHAT WE CALL THE RADIOACTIVE PARTICLES IN THE MUSHROOM CLOUD WHEN AN H-BOMB EXPLODES NEAR THE EARTH.

OOOOOOOOOOOOOOOO
OOOOOOOO

DAD!

THERE GOES THE TAKE-COVER SIGNAL. **GET INTO THE SHELTER! QUICKLY!**



The turboprop engine was mounted behind the cockpit and drove the propeller through a long extension shaft.

A small auxiliary fin behind the cockpit helped yaw control.

The XF-84H had a T-tail arrangement rather than a mid-set tailplane as on the F-84F Thunderstreak. This kept it out of the propwash.

Various changes were needed to counteract the massive torque from the propeller. The left engine intake was mounted a foot further forward than the right and the flaps had differential operation.

Jet Sub Fires Underwater Rockets

Submarines can win a war, top military men say! So here's the dope on our race for undersea supremacy.

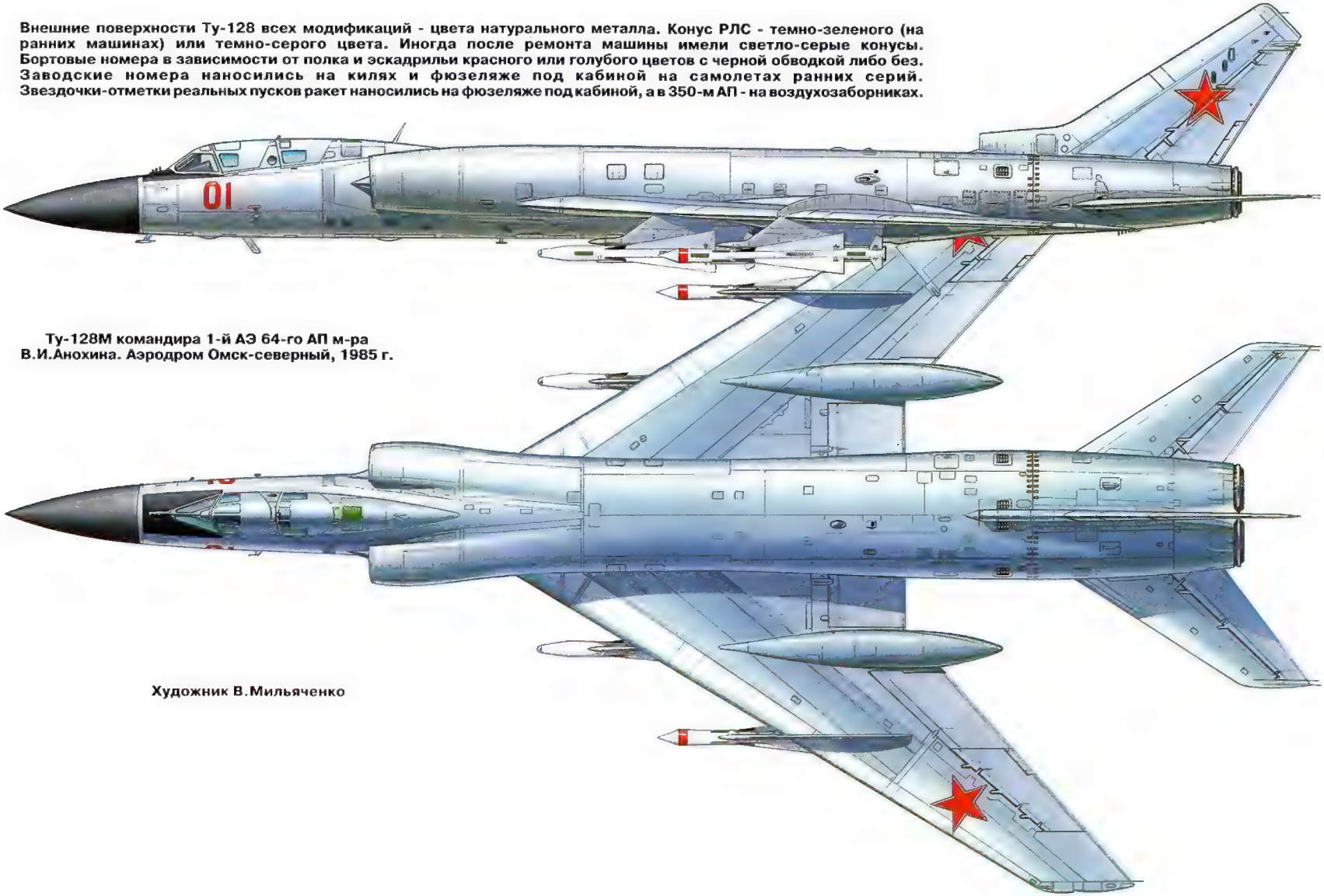
By Frank Tinsley

THE lowly pig-boat of yesterday has become the capital ship of tomorrow! An American jet submarine, firing underwater rockets, might tilt the balance between victory and defeat in the event of a third world war.

In the closing days of World War II, Germany's designers brought the U-boat to an unparalleled level of efficiency. Harried by the success of allied aircraft and radar, they came up with a series of radically new developments that threatened to wipe out our sea-borne supply lines. Looted from captured Dutch pigboat bases, the "snorkel" air breathing apparatus permitted swastika killers to cruise underwater and fight undetected without having to come up for air.

The powerful Walther hydrogen-peroxide gas turbine went a step farther, promising phenomenal underwater speeds with no air intake

Внешние поверхности Ту-128 всех модификаций - цвета натурального металла. Конус РЛС - темно-зеленого (на ранних машинах) или темно-серого цвета. Иногда после ремонта машины имели светло-серые конусы. Бортовые номера в зависимости от полка и эскадрильи красного или голубого цветов с черной обводкой либо без. Заводские номера наносились на килях и фюзеляже под кабиной на самолетах ранних серий. Звездочки-отметки реальных пусков ракет наносились на фюзеляже под кабиной, а в 350-м АП - на воздухозаборниках.



Ту-128М командира 1-й АЭ 64-го АП м-ра
В.И.Анохина. Аэродром Омск-северный, 1985 г.

Художник В.Мильяченко

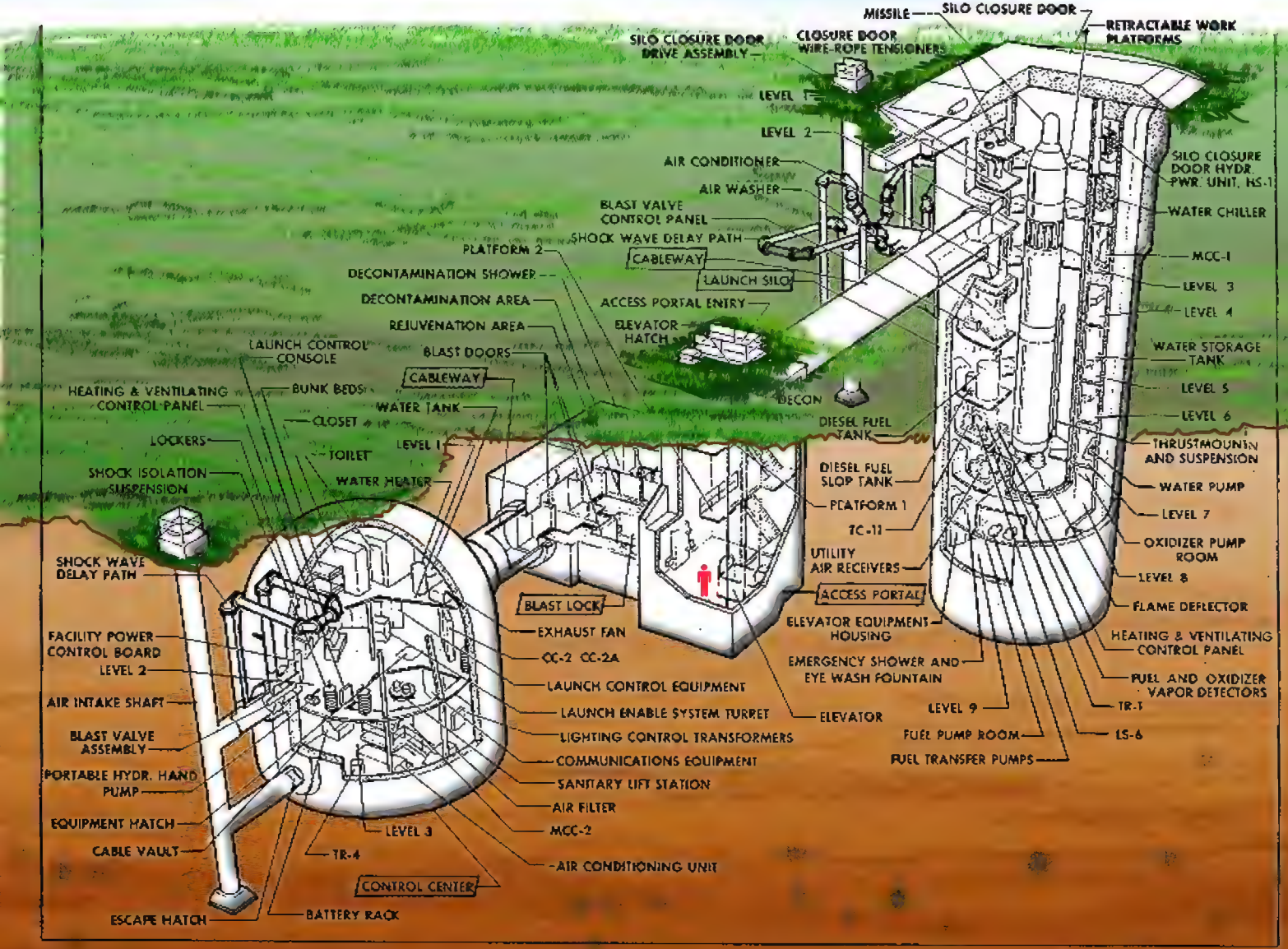
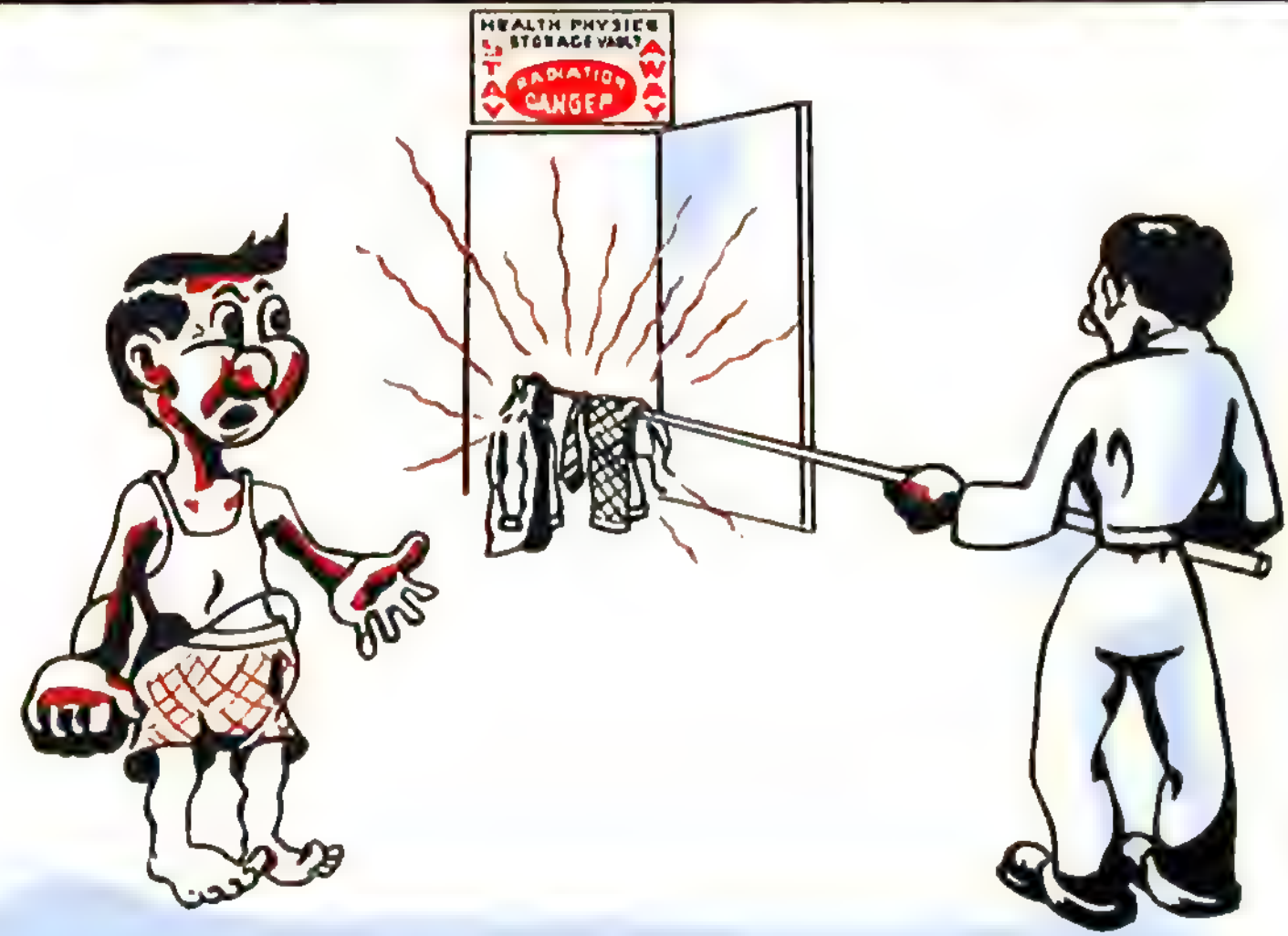


Figure 2. Missile underground facilities layout and equipment location.

ETTC 64-6393

XXR

A MAN and CONTAMINATED CLOTHING are SOON PARTED !!



Wear Protective CLOTHING

WHERE CONTAMINATION IS POSSIBLE

HEALTH PHYSICS *For Your Protection*

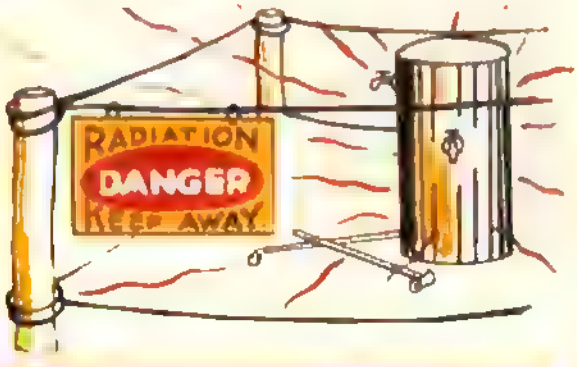
XR

Forgotten METERS measure no RADIATION

HEALTH PHYSICS *For Your Protection*

XR

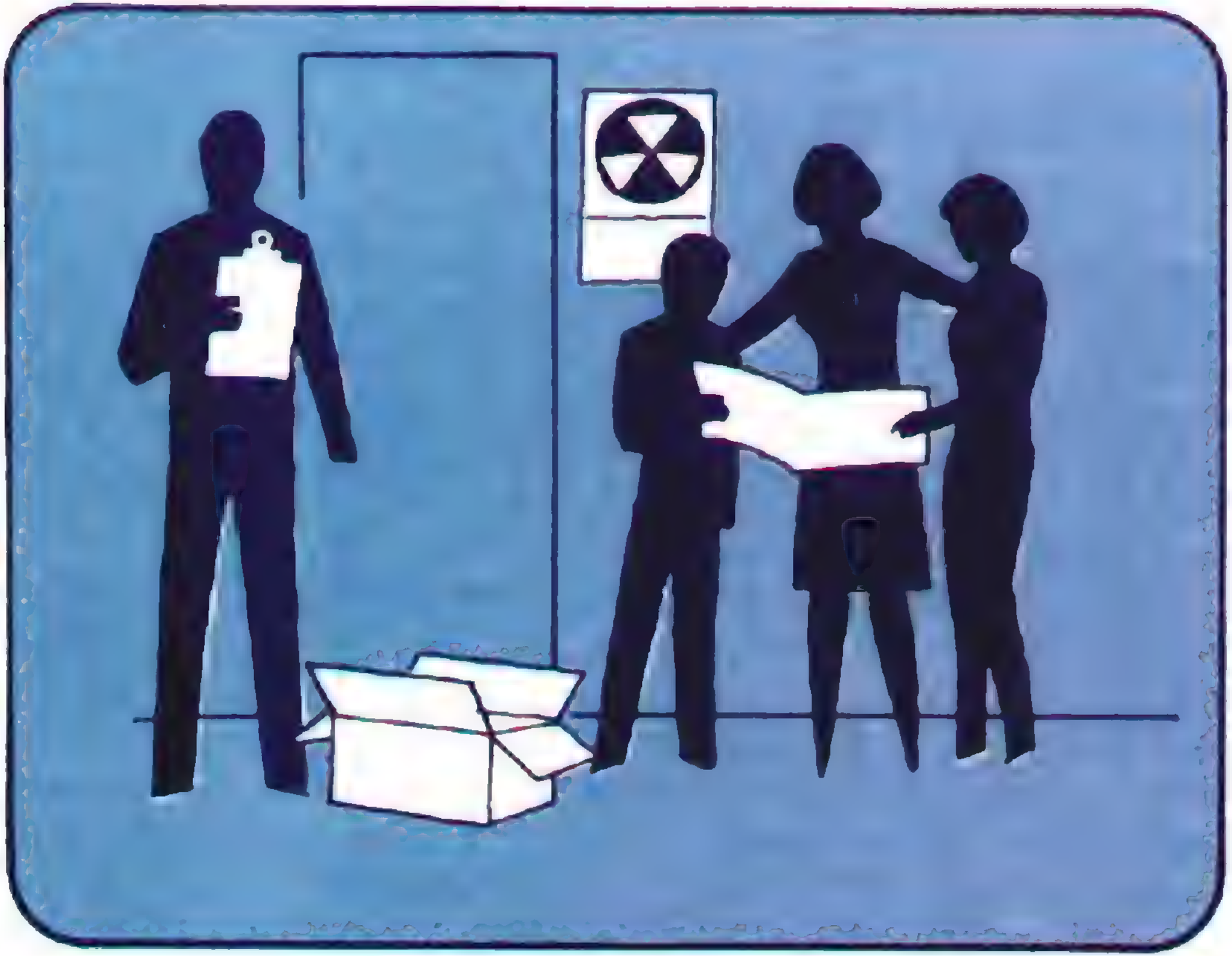
RADIATION Need Not Be FEARED



But it MUST COMMAND YOUR RESPECT.

HEALTH PHYSICS *For Your Protection.*

XR



XR

THIS
IS
REDSTONE
CHRYSLER
CORPORATION
MISSILE
DIVISION

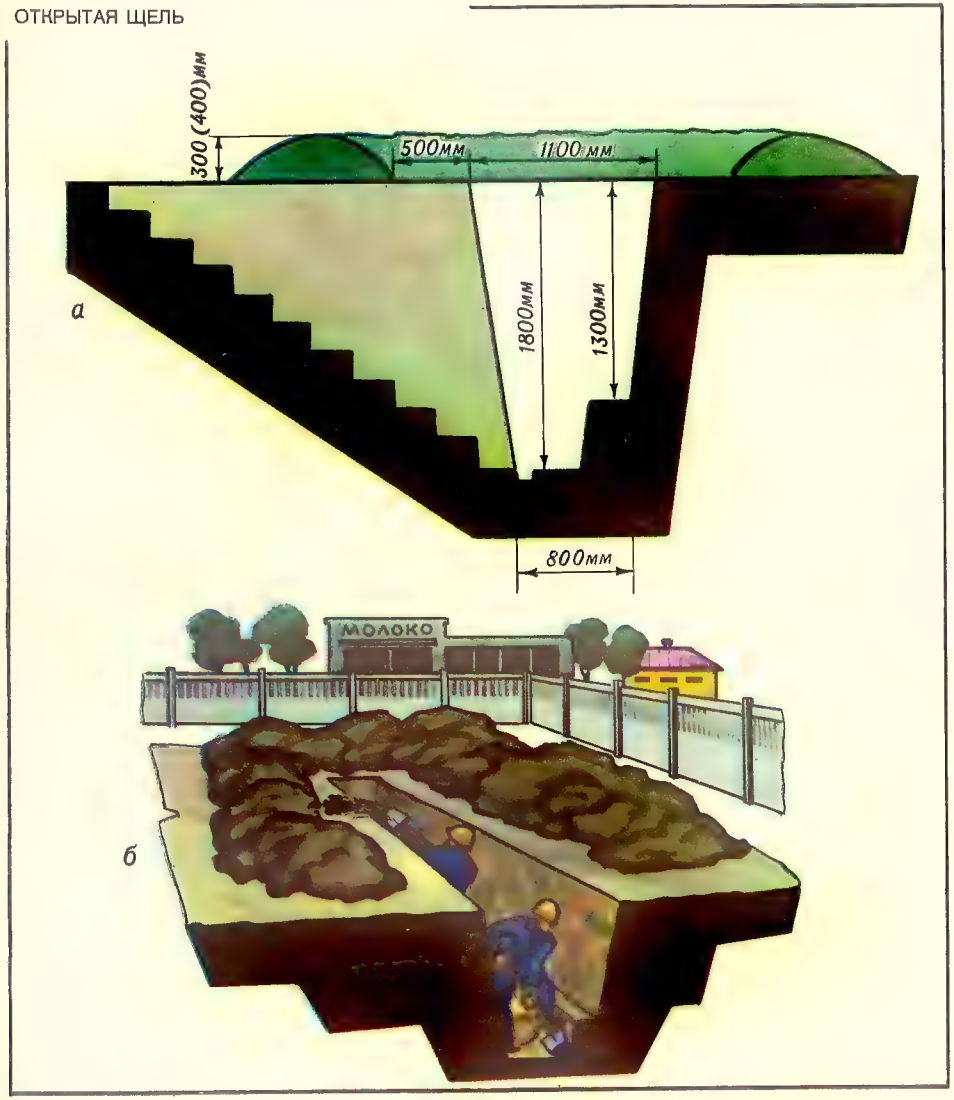
OUR TREADMILL FOREIGN POLICY, A CARTOONIST'S VIEW

Mr. Dulles' description of U.S. foreign policy as a treadmill inspired Cartoonist **Walt** Kelly, creator of the comic strip *Pogo* (LIFE, May 12), to draw his impression for LIFE. The West is on a treadmill, galloping after peace. The desire for peace is real but the dove Stalin sends up is a lure intended to confuse us. Some nations can keep up with us; but others tumble off, some into the Communist baskets. Meanwhile self-styled "neutrals" regard the treadmill with little enthusiasm.

XR

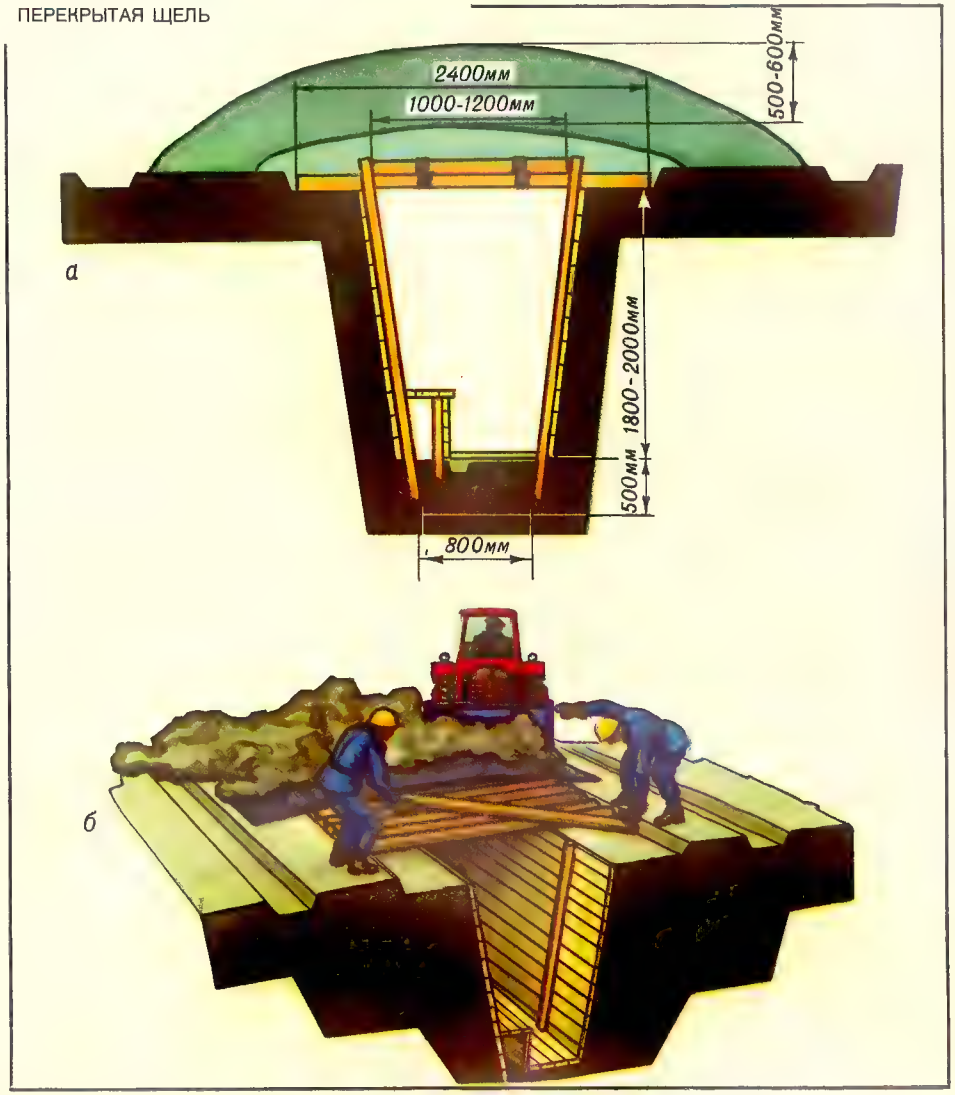
ПРОСТЕЙШИЕ УКРЫТИЯ ОСЛАБЛЯЮТ ВОЗДЕЙСТВИЕ УДАРНОЙ ВОЛНЫ И РАДИОАКТИВНОГО ИЗЛУЧЕНИЯ, ЗАЩИЩАЮТ ОТ СВЕТОВОГО ИЗЛУЧЕНИЯ И ОБЛОМКОВ РАЗРУШАЮЩИХСЯ ЗДАНИЙ, ПРЕДОХРАНЯЮТ ОТ ПОПАДАНИЯ НА ОДЕЖДУ И КОЖУ РАДИОАКТИВНЫХ, ОТРАВЛЯЮЩИХ И ЗАЖИГАТЕЛЬНЫХ ВЕЩЕСТВ

ОТКРЫТАЯ ЩЕЛЬ



а) схема щели; б) отрывка щели

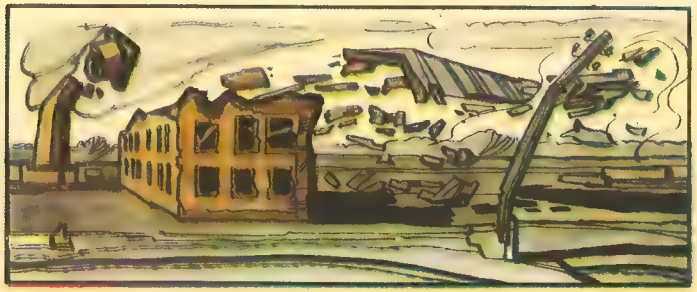
ПЕРЕКРЫТАЯ ЩЕЛЬ



а) схема щели; б) сооружение перекрытой щели с одеждой крутостей

ПРИ УГРОЗЕ НАПАДЕНИЯ ПРОТИВНИКА НАСЕЛЕНИЕ МОЖЕТ СВОИМИ СИЛАМИ СООРУЖАТЬ ИЗ ПОДРУЧНЫХ МАТЕРИАЛОВ ПРОСТЕЙШИЕ УКРЫТИЯ ТИПА ОТКРЫТЫХ, ПЕРЕКРЫТЫХ ЩЕЛЕЙ И ДР.

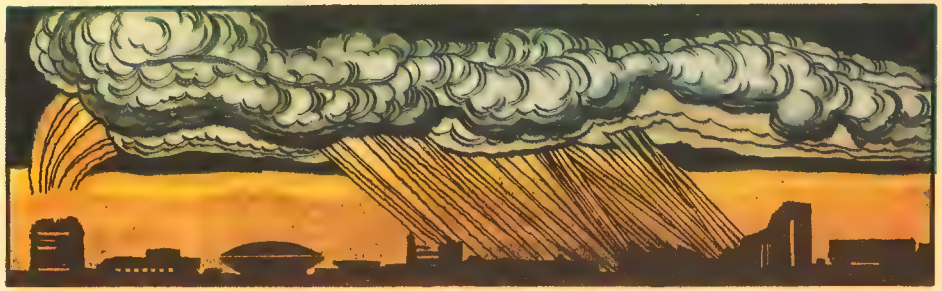
ПОРАЖАЮЩИМИ ФАКТОРАМИ ЯДЕРНОГО ВЗРЫВА ЯВЛЯЮТСЯ: УДАРНАЯ ВОЛНА, СВЕТОВОЕ ИЗЛУЧЕНИЕ, ПРОНИКАЮЩАЯ РАДИАЦИЯ, РАДИОАКТИВНОЕ ЗАРАЖЕНИЕ



Ударная волна

Световое излучение

Проникающая радиация



Радиоактивное заражение

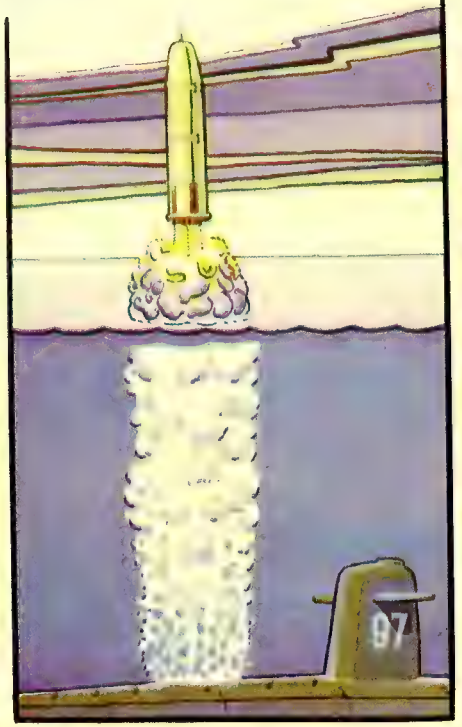
Межконтинентальные баллистические ракеты:
1 — Титан-2; 2 — Минитмэн-3; 3 — Минитмэн-2

Баллистические ракеты средней дальности:
4 — «Першинг-2»

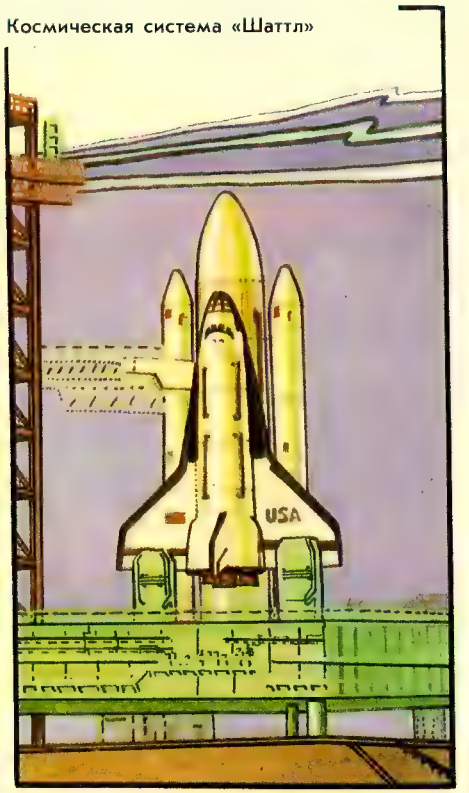
Стратегические крылатые ракеты:
5, 6 — «Томагавк»

Стратегические бомбардировщики:
7 — ФВ-111; 8 — В-1; 9 — В-52

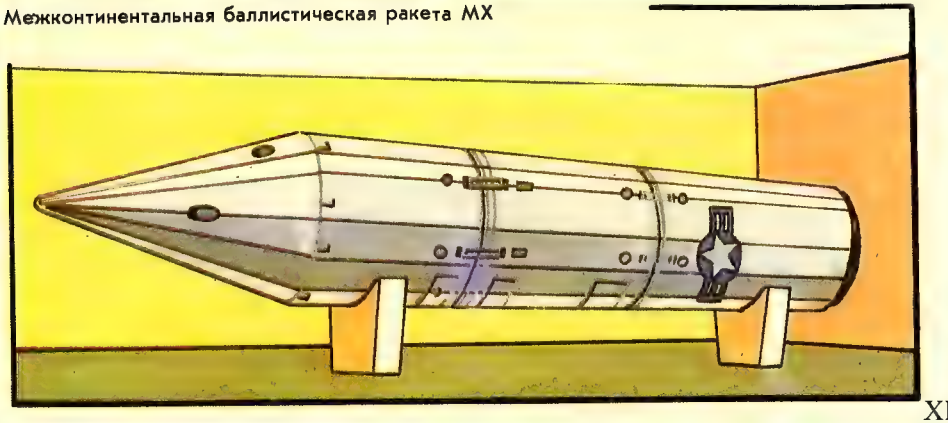
Баллистические ракеты атомных подводных лодок



Космическая система «Шаттл»



Межконтинентальная баллистическая ракета МХ



XR

RONALD KNOX

GOD and the ATOM

SHEED & WARD

DEDICATED TO AMERICA'S DEFENSE
F-100
F-100
F-100
GENERAL ELECTRIC

XR

"Win The Cold War
— — OR ELSE!"

Freedom Seminar

EDGEWATER HIGH SCHOOL AUDITORIUM

SATURDAY, NOVEMBER 11, 1961

Orlando, Florida

Sponsored by

EAST ORLANDO CIVITAN CLUB

XR

50th ANNIVERSARY YEAR

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UNDERSTAND IT

REG'D. TRADE MARK, GREAT BRITAIN, No. [illegible]
REG. U.S. PAT. OFF.

JULY 1952

35 CENTS

See Page 109

In This Issue

I RODE THE FIRST JET LINER

The Owners Report on the Mercury

CATCH 'EM WITH LIVE BAITS

How Atomic Bombs May Be Used on Battlefields

Last April 22, near Las Vegas, Nev., the U. S. Army experimented with an atomic bomb as a tactical weapon for the first time. This sketch made at the scene by Reynold Brown depicts part of that day's activity.

Civil-defense officials, newspapermen and TV cameramen were perched like monkeys on the rocks of the hill that you see below.

Soldiers crouched in foxholes between these observers and the target until a few seconds after the explosion. Then they climbed out and followed leaders with Geiger counters toward the target. They were asked to imagine that the target had been an important military objective in which the enemy was strongly entrenched, and which they were to attack and capture as quickly as possible.

While most of the troops advanced toward this objective, the paratroopers among them withdrew to planes in the rear, climbed aboard, flew around the cloud of dust to the far side of the target and dropped to attack from that direction.

Airplanes, tanks, jeeps, artillery and other military equipment were parked between the target and the men's foxholes during the explosion. Much of this equipment was damaged, but the advancing troops found that most could be repaired enough to be used again within a few hours.

Control Point for Atomic Experiments

This fenced-in area on the side of a Nevada mountain is the nerve center of the AEC's proving ground for atomic weapons. Instruments throughout the desert are operated from the building at right. This building is about 10 miles from the point where the bomb shown here went off. Many of the objects which are shown clearly in this sketch could not actually be seen from the control point without binoculars.

LEARN

1. WARNING SIGNALS AND WHAT THEY MEAN.

2. YOUR COMMUNITY CIVIL DEFENSE PLAN.

3. FIRST AID AND HOME EMERGENCY PREPAREDNESS.

XR

Printed in U.S.A.

AIRCRAFT COMMANDER'S *Station*

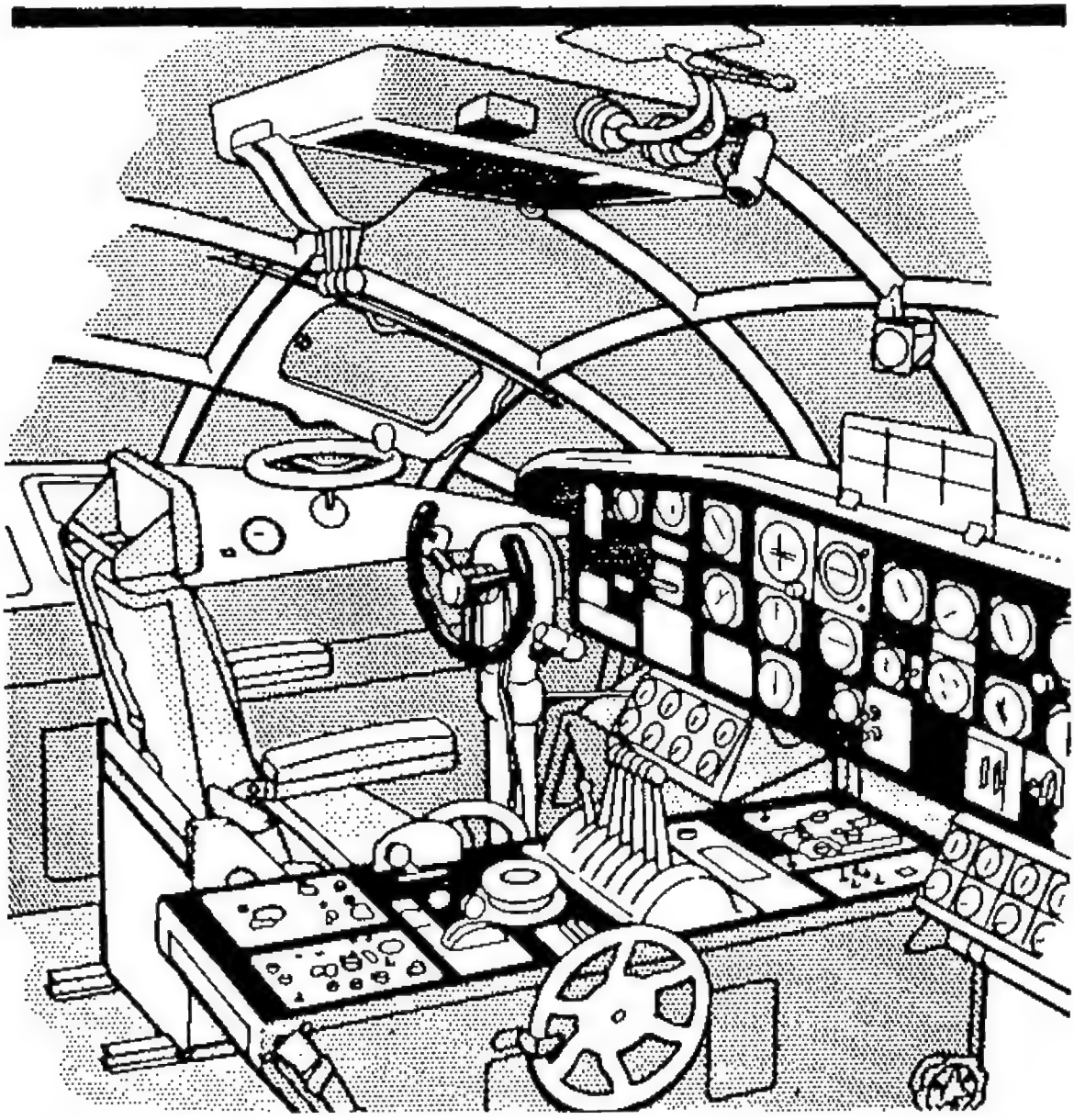


FIGURE 1. B-36F(II) Aircraft Commander's station. The overhead panel contains the starting and throttle controls for the four J-47 jet engines. The six throttles on the consol panel were used by the pilots during landing and taxiing operations. Instruments depicted were primarily those for flight control.

XR

Forward Cabin ARRANGEMENT

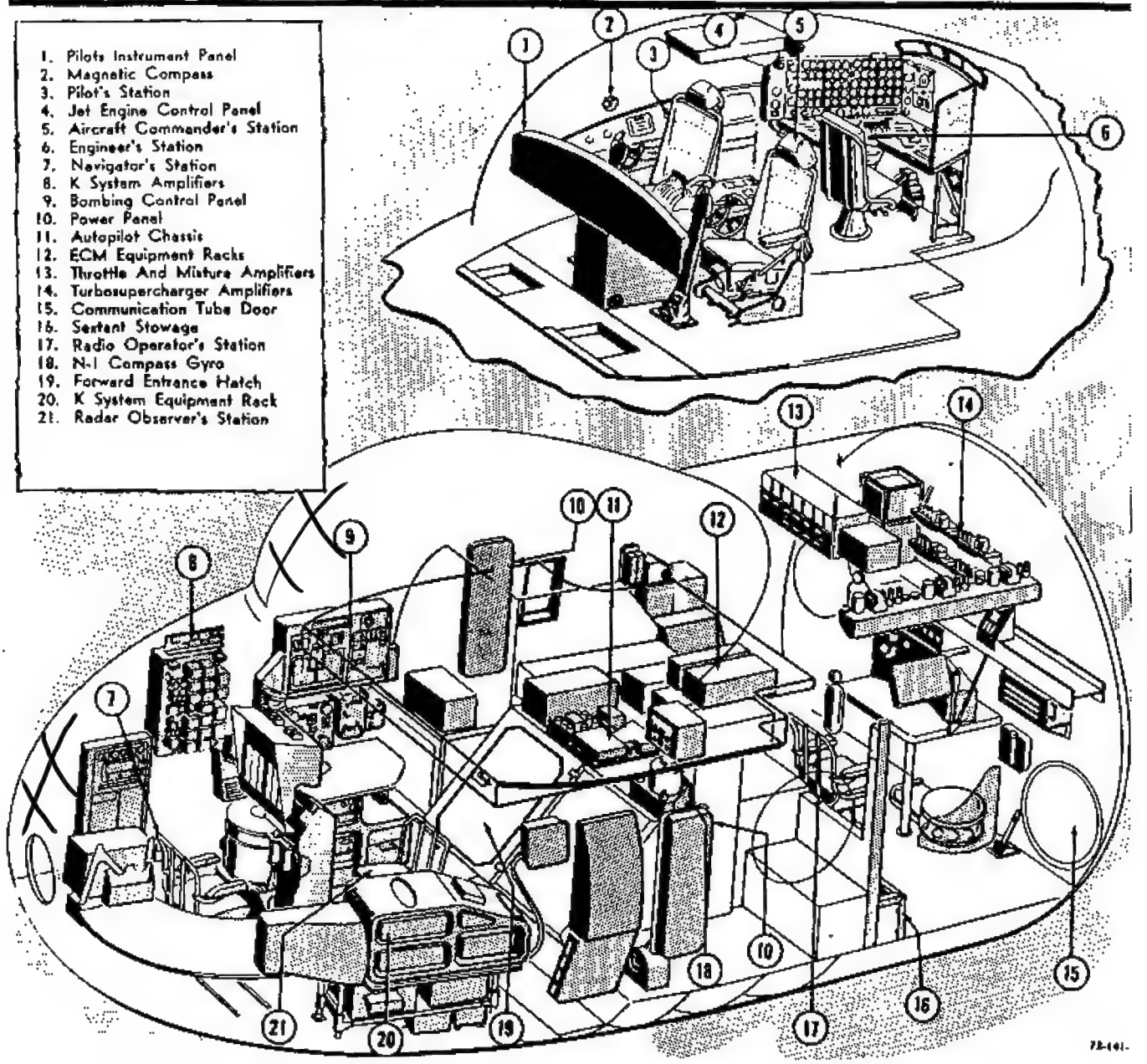
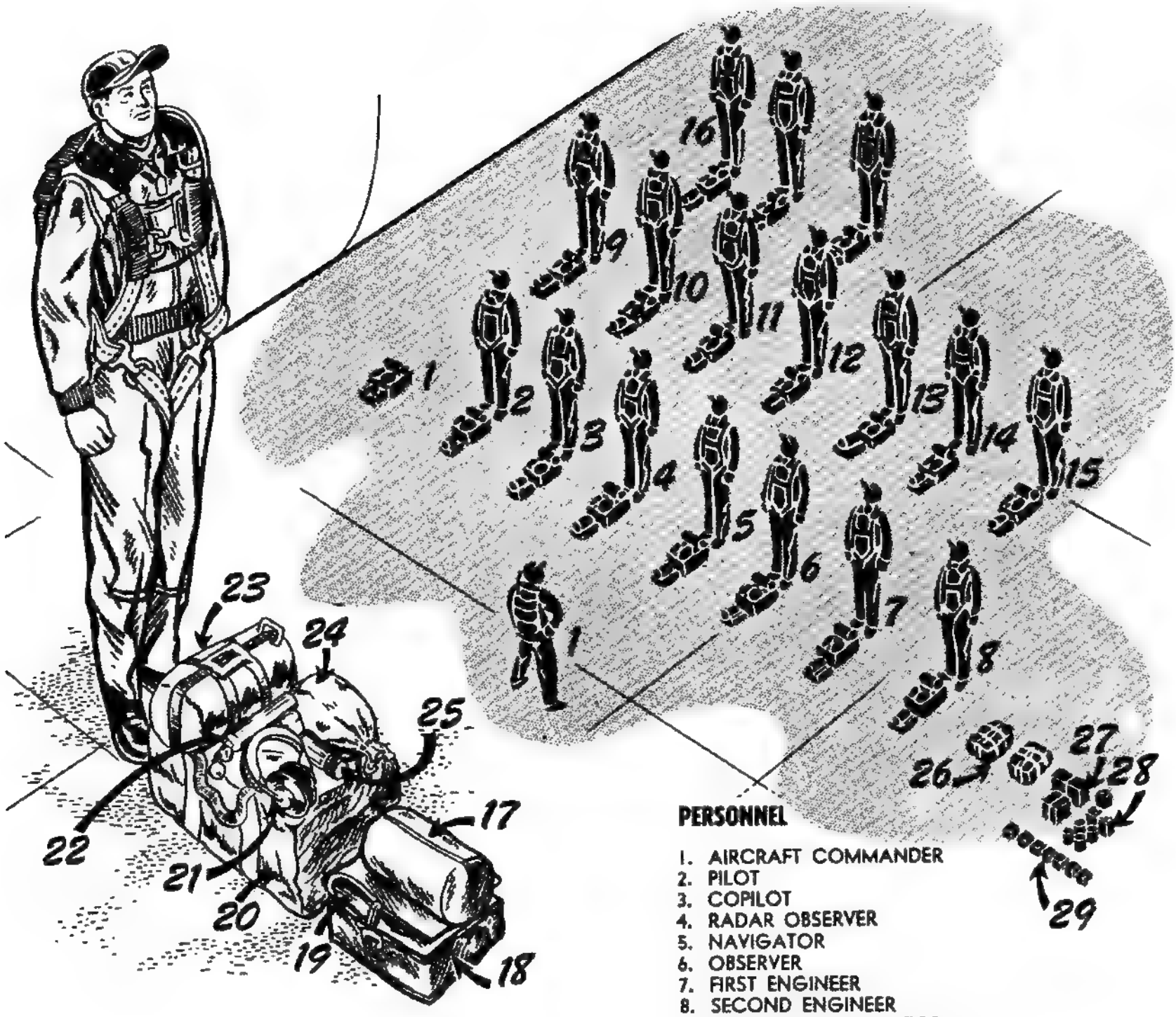


FIGURE 5. B-36F(III) Forward Cabin showing the upper flight deck, navigator and bombardier positions, and the radio operators compartment. Number 19 shows entrance via the nose wheel well. The round hatch (through which arrow 17 points) was the normal entrance which required a ground maintenance stand to use. Three foot lockers of spare radar set parts would be stored in the crawl way below the round entrance hatch.



PERSONNEL

1. AIRCRAFT COMMANDER
2. PILOT
3. COPILOT
4. RADAR OBSERVER
5. NAVIGATOR
6. OBSERVER
7. FIRST ENGINEER
8. SECOND ENGINEER
9. FIRST RADIO OPERATOR
10. SECOND RADIO OPERATOR
11. UPPER AFT GUNNER (RIGHT)
12. UPPER AFT GUNNER (LEFT)
13. LOWER AFT GUNNER (RIGHT
14. LOWER AFT GUNNER (LEFT)
15. TAIL GUNNER
16. PASSENGERS

PERSONAL EQUIPMENT

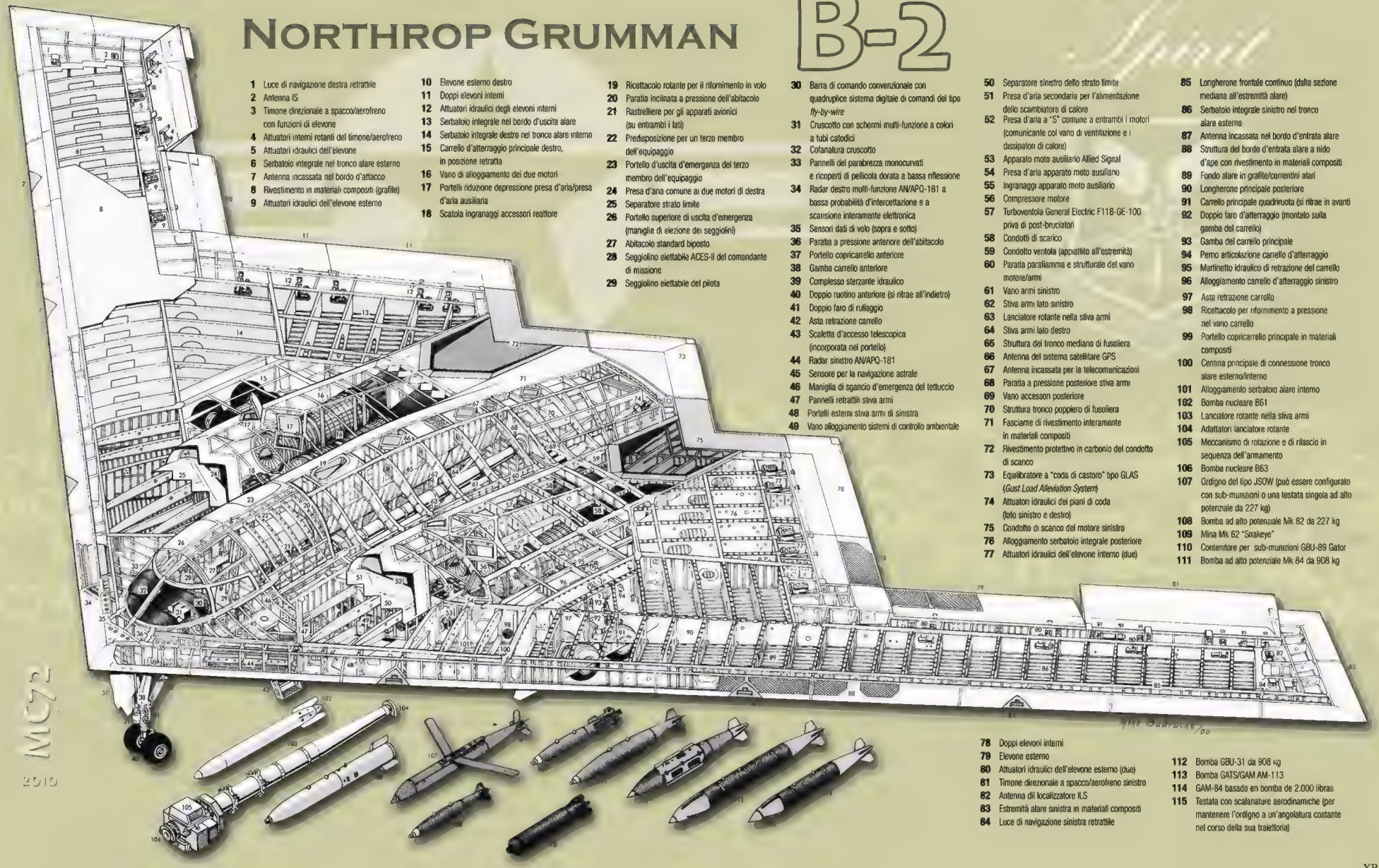
17. ANTI-EXPOSURE SUIT
18. ONE-MAN LIFE RAFT
19. MAE WEST
20. A-3 BAG
21. HEADSET AND MICROPHONE
22. BAIL-OUT BOTTLE
23. CHEST-TYPE PARACHUTE
24. OXYGEN MASK AND HELMET
25. FLASHLIGHT

MISCELLANEOUS EQUIPMENT

26. EXTRA PARACHUTES, OXYGEN MASKS, AND BAIL-OUT BOTTLES(ATTACHED TO PARACHUTES)
27. FOOD AND BEVERAGE CONTAINERS
28. ALDIS LAMPS
29. FIRST AID KITS

Personnel and personal equipment on the B-36. COURTESY USAF

NORTHROP GRUMMAN B-2



1 Luce di navigazione destra retrattile
2 Antenna IS
3 Timone direzionale a spacco/aerofreno con funzioni di elevone
4 Attuatori interni rotanti del timone/aerofreno
5 Attuatori idraulici dell'elevone
6 Serbatoio integrale nel tronco alare esterno
7 Antenna incassata nel bordo d'attacco
8 Rivestimento in materiali compositi (grafite)
9 Attuatori idraulici dell'elevone esterno
10 Elevone esterno destro
11 Doppi elevoni interni
12 Attuatori idraulici degli elevoni interni
13 Serbatoio integrale nel bordo d'uscita alare
14 Serbatoio integrale destro nel tronco alare interno
15 Carrello d'atterraggio principale destro, in posizione retratta
16 Vano di alloggiamento dei due motori
17 Portelli riduzione depressione presa d'aria/presa d'aria ausiliaria
18 Scatola ingranaggi accessori reattore
19 Ricettacolo rotante per il rifornimento in volo
20 Paratia inclinata a pressione dell'abitacolo
21 Rastrelliere per gli apparati avionici (su entrambi i lati)
22 Predisposizione per un terzo membro dell'equipaggio
23 Portello d'uscita d'emergenza del terzo membro dell'equipaggio
24 Presa d'ana comune ai due motori di destra
25 Separatore strato limite
26 Portello superiore di uscita d'emergenza (maniglie di eiezione dei seggiolini)
27 Abitacolo standard biposto
28 Seggiolino eiettabile ACES-II del comandante di missione
29 Seggiolino eiettabile del pilota
30 Barra di comando convenzionale con quadruplice sistema digitale di comandi del tipo *fly-by-wire*
31 Cruscotto con schermi multi-funzione a colori a tubi catodici
32 Cofanatura cruscotto
33 Pannelli del parabrezza monocurvati e ricoperti di pellicola dorata a bassa riflessione
34 Radar destro multi-funzione AN/APQ-181 a bassa probabilità d'intercettazione e a scansione interamente elettronica
35 Sensori dati di volo (sopra e sotto)
36 Paratia a pressione anteriore dell'abitacolo
37 Portello copricarrello anteriore
38 Gamba carrello anteriore
39 Complesso sterzante idraulico
40 Doppio ruotino anteriore (si ritrae all'indietro)
41 Doppio faro di rullaggio
42 Asta retrazione carrello
43 Scaletta d'accesso telescopica (incorporata nel portello)
44 Radar sinistro AN/APQ-181
45 Sensore per la navigazione astrale
46 Maniglia di sgancio d'emergenza del tettuccio
47 Pannelli retrattili stiva armi
48 Portelli esterni stiva armi di sinistra
49 Vano alloggiamento sistemi di controllo ambientale
50 Separatore sinistro dello strato limite
51 Presa d'aria secondaria per l'alimentazione dello scambiatore di calore
52 Presa d'aria a "S" comune a entrambi i motori (comunicante col vano di ventilazione e i dissipatori di calore)
53 Apparato moto ausiliario Allied Signal
54 Presa d'aria apparato moto ausiliario
55 Ingranaggi apparato moto ausiliario
56 Compressore motore
57 Turboventola General Electric F118-GE-100 priva di post-bruciatori
58 Condotti di scarico
59 Condotto ventola (appiattito all'estremità)
60 Paratia parafiamma e strutturale del vano motore/armi
61 Vano armi sinistro
62 Stiva armi lato sinistro
63 Lanciatore rotante nella stiva armi
64 Stiva armi lato destro
65 Struttura del tronco mediano di fusoliera
66 Antenna del sistema satellitare GPS
67 Antenna incassata per le telecomunicazioni
68 Paratia a pressione posteriore stiva armi
69 Vano accessori posteriore
70 Struttura tronco poppiero di fusoliera
71 Fasciame di rivestimento interamente in materiali compositi
72 Rivestimento protettivo in carbonio del condotto di scarico
73 Equilibratore a "coda di castoro" tipo GLAS (*Gust Load Alleviation System*)
74 Attuatori idraulici dei piani di coda (lato sinistro e destro)
75 Condotto di scarico del motore sinistro
76 Alloggiamento serbatoio integrale posteriore
77 Attuatori idraulici dell'elevone interno (due)
78 Doppi elevoni interni
79 Elevone esterno
80 Attuatori idraulici dell'elevone esterno (due)
81 Timone direzionale a spacco/aerofreno sinistro
82 Antenna di localizzatore ILS
83 Estremità alare sinistra in materiali compositi
84 Luce di navigazione sinistra retrattile
85 Longherone frontale continuo (dalla sezione mediana all'estremità alare)
86 Serbatoio integrale sinistro nel tronco alare esterno
87 Antenna incassata nel bordo d'entrata alare
88 Struttura del bordo d'entrata alare a nido d'ape con rivestimento in materiali compositi
89 Fondo alare in grafite/correntini alari
90 Longherone principale posteriore
91 Carrello principale quadriruota (si ritrae in avanti
92 Doppio faro d'atterraggio (montato sulla gamba del carrello)
93 Gamba del carrello principale
94 Perno articolazione carrello d'atterraggio
95 Martinetto idraulico di retrazione del carrello
96 Alloggiamento carrello d'atterraggio sinistro
97 Asta retrazione carrello
98 Ricettacolo per rifornimento a pressione nel vano carrello
99 Portello copricarrello principale in materiali compositi
100 Centina principale di connessione tronco alare esterno/interno
101 Alloggiamento serbatoio alare interno
102 Bomba nucleare B61
103 Lanciatore rotante nella stiva armi
104 Adattatori lanciatore rotante
105 Meccanismo di rotazione e di rilascio in sequenza dell'armamento
106 Bomba nucleare B63
107 Ordigno del tipo JSOW (può essere configurato con sub-munizioni o una testata singola ad alto potenziale da 227 kg)
108 Bomba ad alto potenziale Mk 82 da 227 kg
109 Mina Mk 62 "Snakeye"
110 Contenitore per sub-munizioni GBU-89 Gator
111 Bomba ad alto potenziale Mk 84 da 908 kg
112 Bomba GBU-31 da 908 kg
113 Bomba GATS/GAM AM-113
114 GAM-84 basado en bomba de 2.000 libras
115 Testata con scalanature aerodinamiche (per mantenere l'ordigno a un'angolatura costante nel corso della sua traiettoria)

MC72
2010

XR

MC-747

Leadership demands constant achievement

AIR DEFENSE FROM THE GROUND UP

AIR ATTACK! This alarm could be sounded in the U. S.—tonight, tomorrow, *any* time! If it is, then time will be priceless—every moment vital.

The U. S. Air Force is ready to answer any alarm. It has protective squadrons of Lockheed Starfire interceptors* on 24-hour alert to climb quickly to the attack, locate and knock out invading bombers in any weather, day or night.

But first the alarm must be given. Somebody must spot the invaders.

And there are only two ways to spot an air attack: (1) by radar, (2) with human eyes and ears. Our network of ground radar stations cannot always spot planes flying under 5,000 feet. So we badly need ground observers and plenty of them.

True, airplanes are being built to take our radar warning system off the ground. For this job Lockheed is right now producing WV-2 Early Warning Constellations with 360-degree radar. These powerful, long-range planes will greatly extend radar's range at high altitudes.

Also the Navy has many Lockheed P2V Neptunes on antisubmarine patrol day and night. Their "eyes" guard against air attack too.

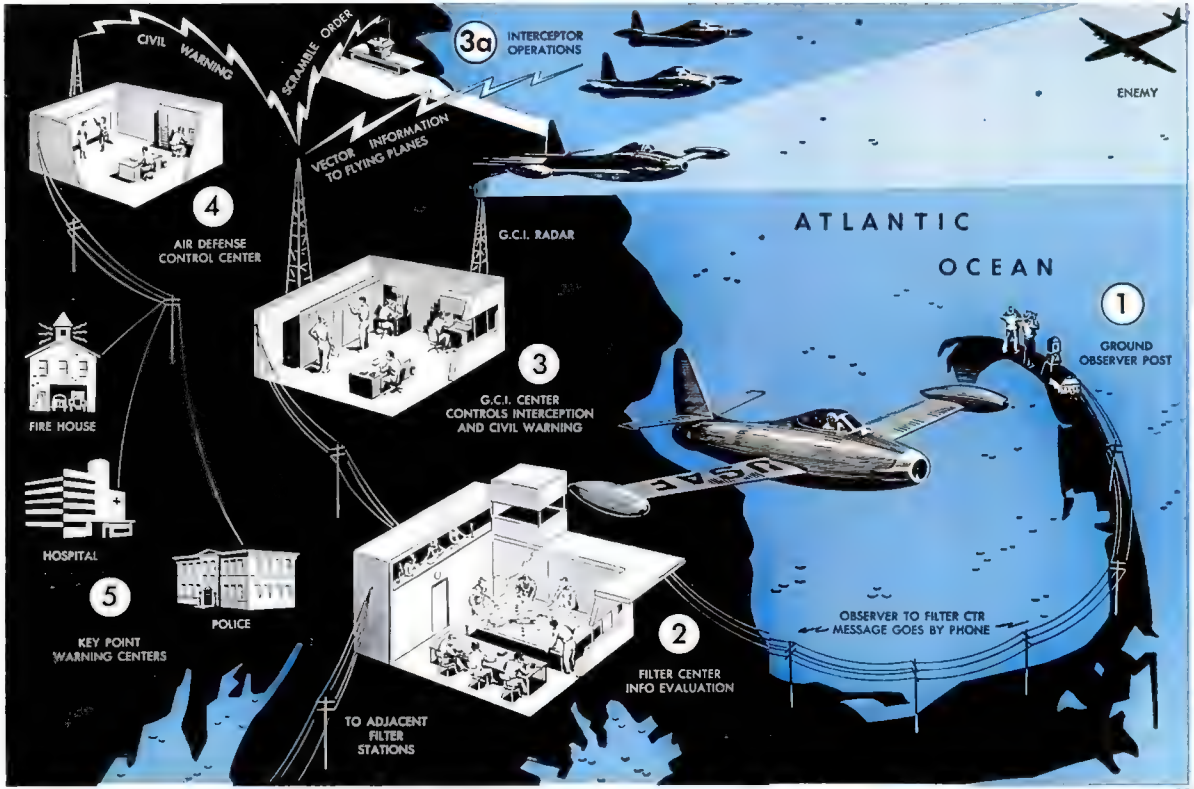
But we still need 500,000 civilian observers to fill the low-level radar gaps. 200,000 volunteers already wear the silver wings of the Ground Observer Corps. 300,000 more are needed—patriotic men and women who will donate just a few hours each week to the security of the U.S. and themselves. Call your Civilian Defense Office. Or send a postcard to Ground Observer Corps, U. S. Air Force, Washington 25, D. C.

LOCKHEED
AIRCRAFT CORPORATION
BURBANK, CALIFORNIA, AND MARIETTA, GEORGIA

**Lockheed Starfire*

Look to Lockheed for Leadership

XR



to catch glimpses of any approaching aircraft.

The Great Lakes industrial area, where a sneak attack could indefinitely cripple our war-production potential, will be ringed by special radar installations at Mason City, Iowa, East Farmington and Elkhorn, Wis., and a point northeast of Duluth, Minn. Just the costs for the land and buildings will run $500,000 to $1,000,000 for each station, without the radar.

Flanking the country, equally well-equipped picket ships are being posted, with radar range that will fan out in a broad sweep down each ocean.

When President Truman announced his decision to produce the H-bomb, steps were taken to police all air space inside the country. Pilots flying anything from kites to jet transports within 100 miles of any atomic-energy plant or other strategic area will have to file flight plans and make periodic reports — or stand a chance of being blown from the sky. Overseas planes coming in along the coast from Canada to Norfolk must do the same before entering within 200 miles of our shores. All southbound flights over the Canadian border, crossing the northeastern and northwestern corners of the U. S., must likewise be registered.

But even "radar fences" aren't foolproof. Many strategists don't even like the term. Radar beams, of course, ride a

How the ground-observer system works, from the initial spotting through key warning centers, is shown at left. Danger signals can be relayed on through entire chain in about four minutes. After the first early warning from ship or plane radar, below, success of interception hinges on the speed of notifications. Ground watchers plug the "blind spots" through which low-flying craft might sneak

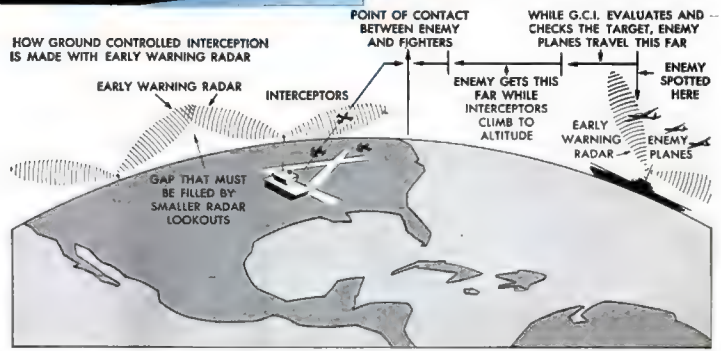
against any power attacking the U. S. by air.

Many people wonder what we're doing, if anything, to keep enemy A or H-bombs from being dumped in our lap. We're doing plenty, within the budgets Congress has allowed. Few, outside the military, know how much.

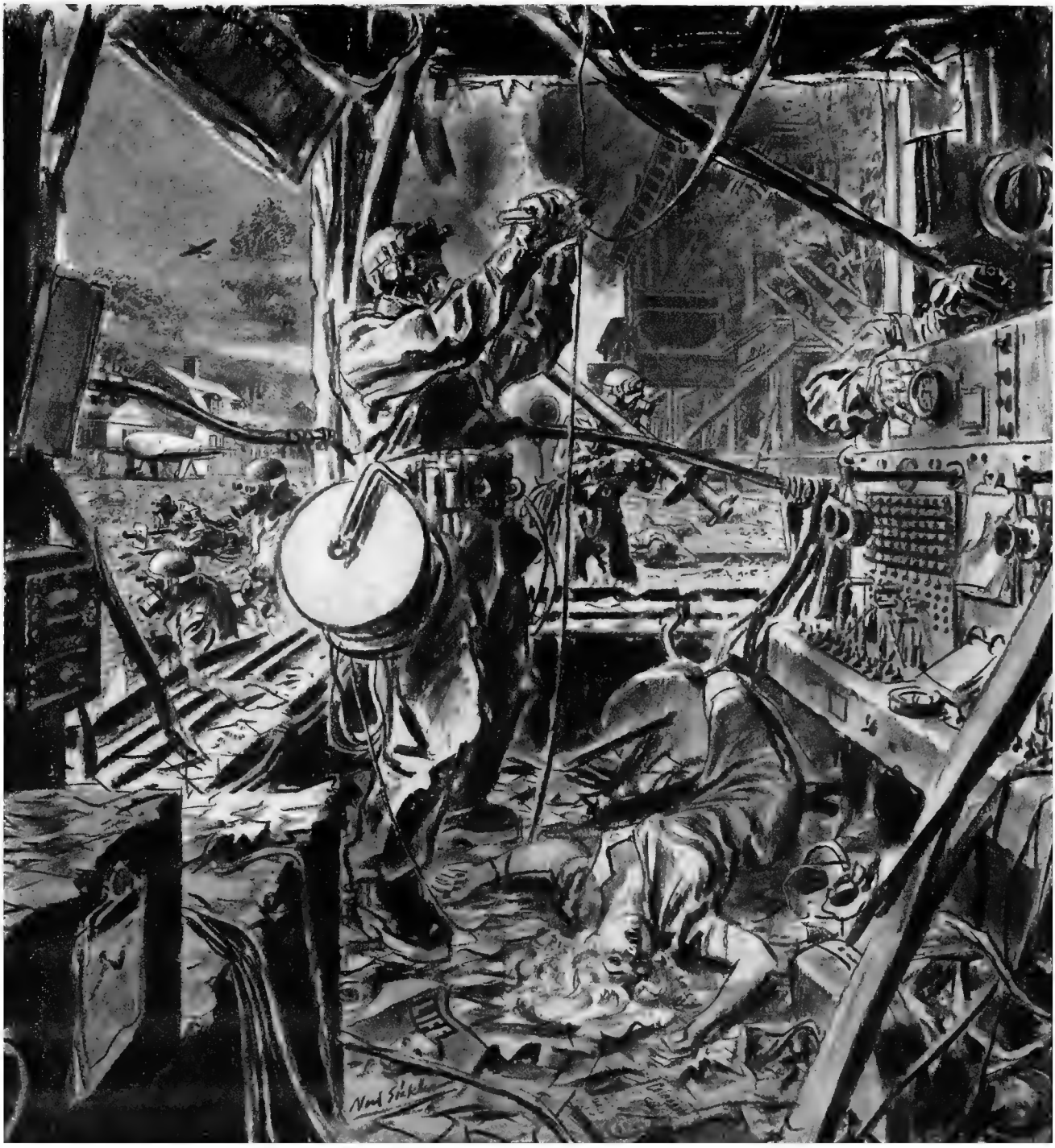
At the Aircraft and Guided Missiles Center in Ft. Bliss, Tex., a spectacular array of new weapons includes self-aiming antiaircraft guns that can pour an almost impenetrable curtain of proximity-fused shells at high-flying supersonic aircraft. There are sky-sweeper guns that will literally spatter the upper air with explosive death. New detectors can pin-point planes flying 1000 miles per hour at 80,000 feet while they're still more than 175 miles away—giving our defenses 10 whole minutes (that's a lot in modern air war) to prepare guns for tracking, and throw jet interceptors into the air.

"We've got to assume that an enemy bomber will travel at least 350 miles per hour," the Air Force points out. Hence, the most vital part of defense is the early tip-off that they're on the way. That's being prepared for in a big way.

Out across the wide reaches of northern Alaska and Canada, sled trains are plowing through Arctic snow, delivering some $50,000,000 worth of equipment to build a "fence" of early warning radar across North America's back door. Sites are picked and construction plans complete. Since most of the work is super-secret, few details are being released. But some of the radar screens will show a warning blip at 300 miles. Others will reach 150 miles out,


HOW GROUND CONTROLLED INTERCEPTION IS MADE WITH EARLY WARNING RADAR
EARLY WARNING RADAR
INTERCEPTORS
POINT OF CONTACT BETWEEN ENEMY AND FIGHTERS
ENEMY GETS THIS FAR WHILE INTERCEPTORS CLIMB TO ALTITUDE
WHILE G.C.I. EVALUATES AND CHECKS THE TARGET, ENEMY PLANES TRAVEL THIS FAR
ENEMY SPOTTED HERE
EARLY WARNING RADAR
ENEMY PLANES
GAP THAT MUST BE FILLED BY SMALLER RADAR LOOKOUTS

BY THE MARBLE LIONS OF NEW YORK'S PUBLIC
LIBRARY, U. S. TECHNICIANS TEST THE RUBBLE
OF THE SHATTERED CITY FOR RADIOACTIVITY

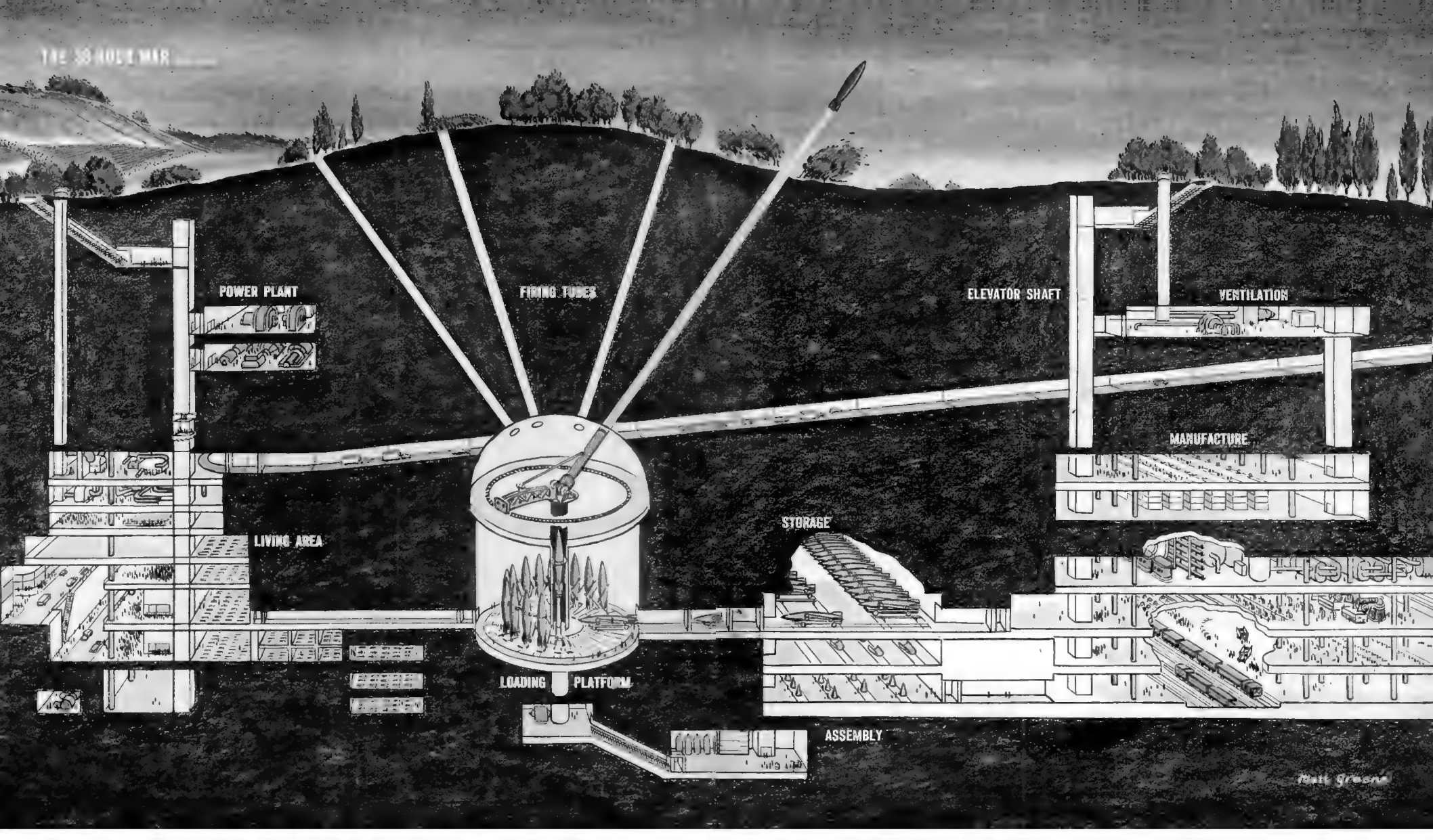


NEAR WAR'S END ENEMY AIRBORNE TROOPS COME IN

Said General Arnold: "Airborne troops have become one of the most effective units of a modern fighting force. . . . Fully equipped airborne task forces will be able to strike at far distant points and will be totally supplied by air."

In spite of the apocalyptic destruction caused by its atomic bombs, an enemy nation would have to invade the U.S. to win the war. The enemy's airborne troops would be equipped with light rocket weapons of great destructive power (*above, rear*) and devices such as goggles which make troop-directing infrared signals visible. The enemy soldier above is repairing a telephone line in a small U.S. town.

By the time enemy troops have landed, the U.S. has suffered terrifying damage. Some 40,000,000 people have been killed and all cities of more than 50,000 population have been leveled. San Francisco's Market Street, Chicago's Michigan Boulevard and New York's Fifth Avenue (*see opposite page*) are merely lanes through the debris. But as it is destroyed the U.S. is fighting back. The enemy airborne troops are wiped out. U.S. rockets lay waste the enemy's cities. U.S. airborne troops successfully occupy his country. The U.S. wins the atomic war.



U.S. MAKES ITS COUNTERATTACK

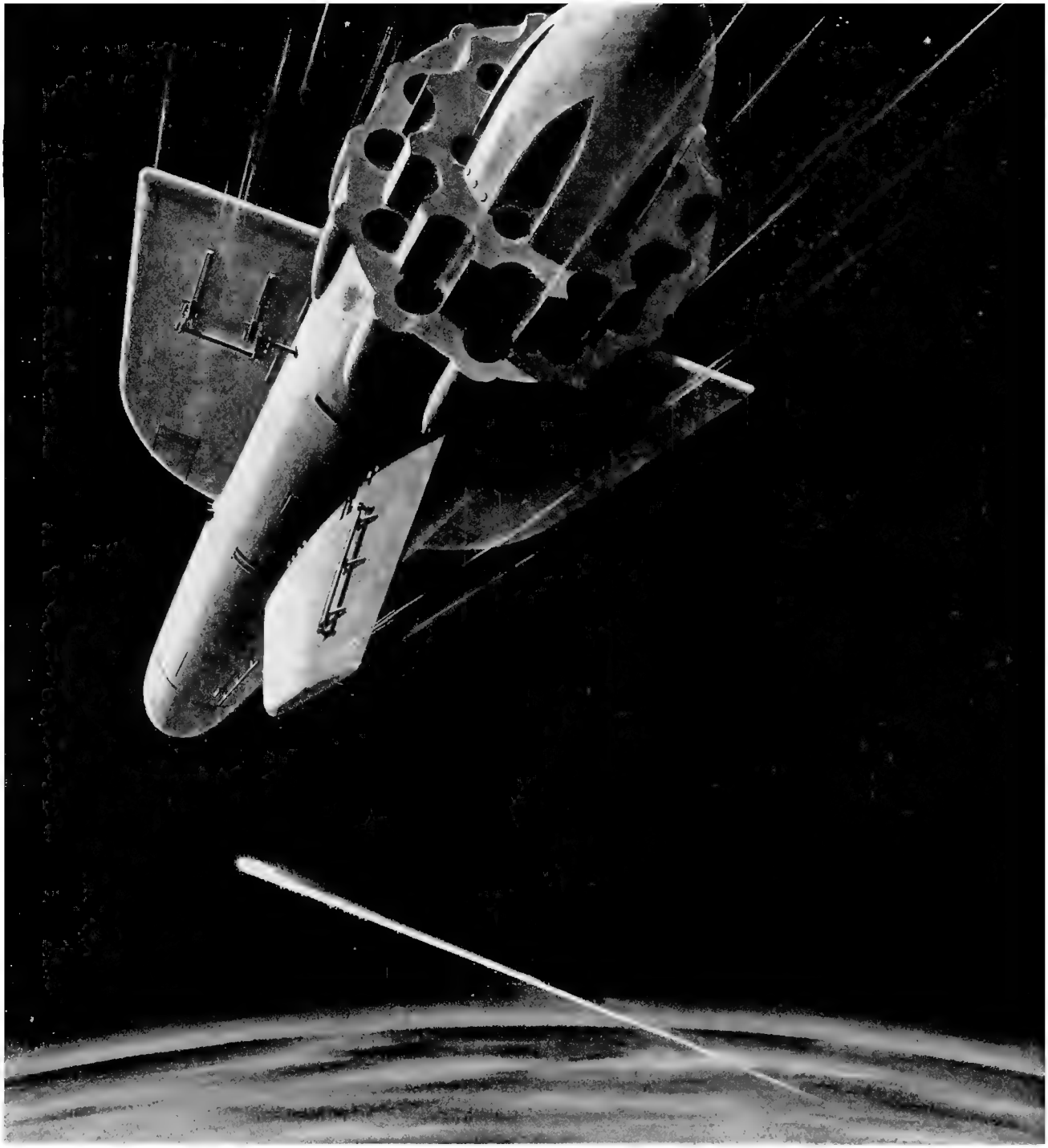
Concerning other possible defenses in an atomic war, General Arnold said: "Three types of defense against an atomic bomb can be conceived: First, we should attempt to make sure that nowhere in the world are atomic bombs being made clandestinely; second, we should devise every possible active defense against an atomic bomb attack, once launched; and third, we might redesign our country for minimum vulnerability . . . ." But the U.S., he continued, ". . . must recognize that real security against atomic weapons in the visible future will rest on our ability to take immediate offensive action with overwhelming force. It must be apparent to a potential aggressor that an attack on the United States would be immediately followed by an immensely devastating air-atomic attack on him."

On these two pages is a combination of two of General Arnold's ideas: decentralization and counterattack. This cross section shows an underground rocket-launching site and atomic bomb factory. It is completely self-contained except for raw materials, which are assembled in big stockpiles. Its workers live underground near their machines, secure against anything except a direct atomic bomb hit or an airborne invasion. Altogether the U.S. might have several dozen such units, all independent so that the destruction or capture of one would not affect the others. At the beginning of the 36-hour war the U.S. has not yet decentralized its entire population, an operation which might cost $250,000,000,000, but only the absolute essentials of national defense.

At the moment illustrated above, the U.S. has sent its first offensive rocket of the war toward an enemy city, just one hour after the enemy attack.

CONTINUED ON NEXT PAGE

XR

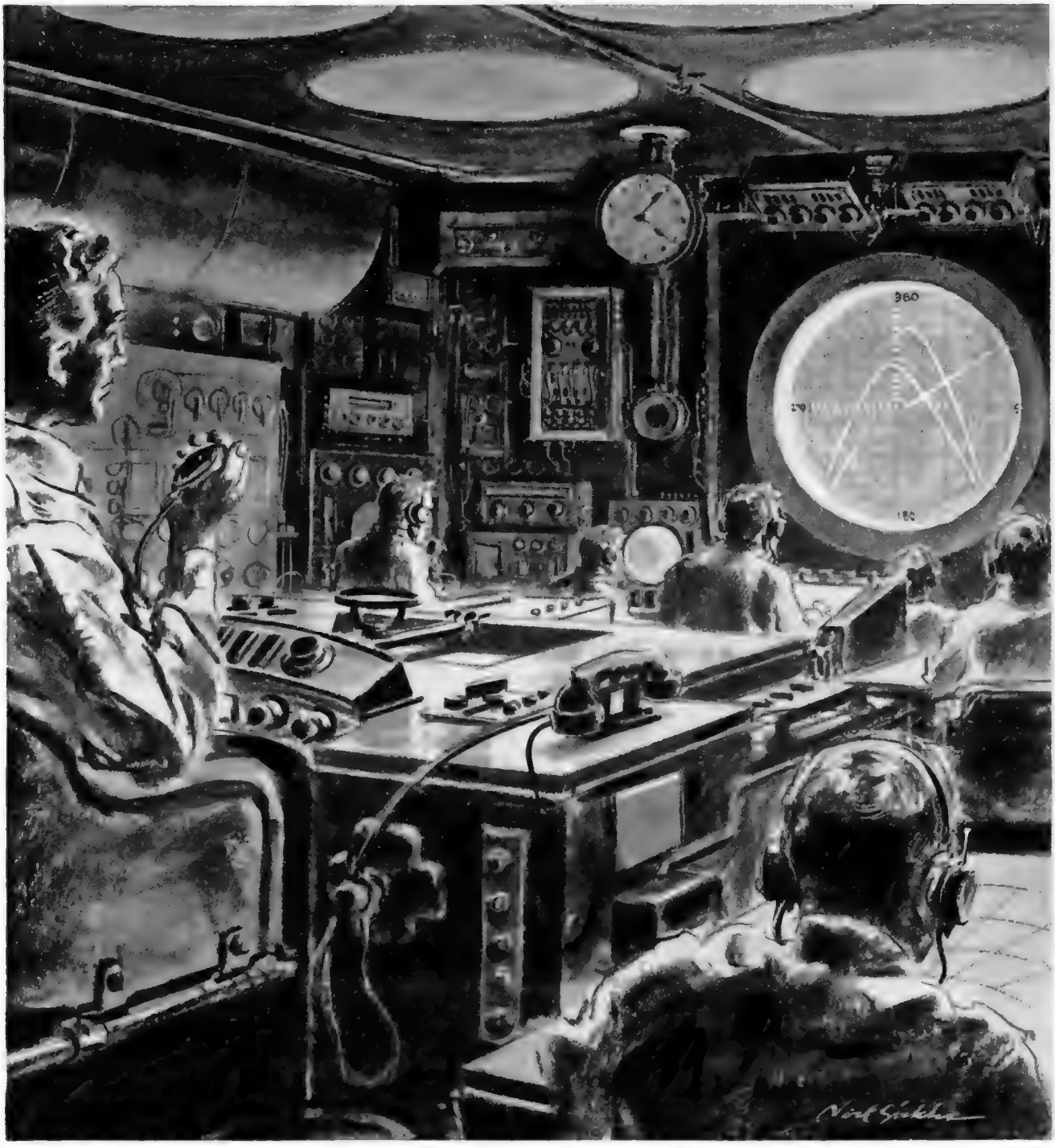


OUR DEFENSIVE MACHINES STOP FEW ATTACKERS

Said General Arnold: "Although there now appear to be insurmountable difficulties in an active defense against future atomic projectiles similar to the German V-2 but armed with atomic explosives, this condition should only intensify our efforts to discover an effective means of defense." The only defense now conceivable against a rocket, once it is in flight, is illustrated above. It is another rocket, fired like an antiaircraft shell at a point where it will meet its enemy. Once it had been launched, such a rocket might detect the attacking machine with radar and make its own corrections. When it came near the enemy rocket, it could be exploded by radio proximity fuze, a development of World War II. But inevitably it would miss some of the time.

Shown above is the instant before the two rockets meet. The enemy rocket, coasting through space with its fuel exhausted, is beginning to fall toward the U.S. The defensive rocket, racing upward under full power, is incandescent from the friction of its short passage through the earth's atmosphere. When the two collide, the atomic explosion will appear to observers on the earth as a brilliant new star.

CONTINUED ON NEXT PAGE

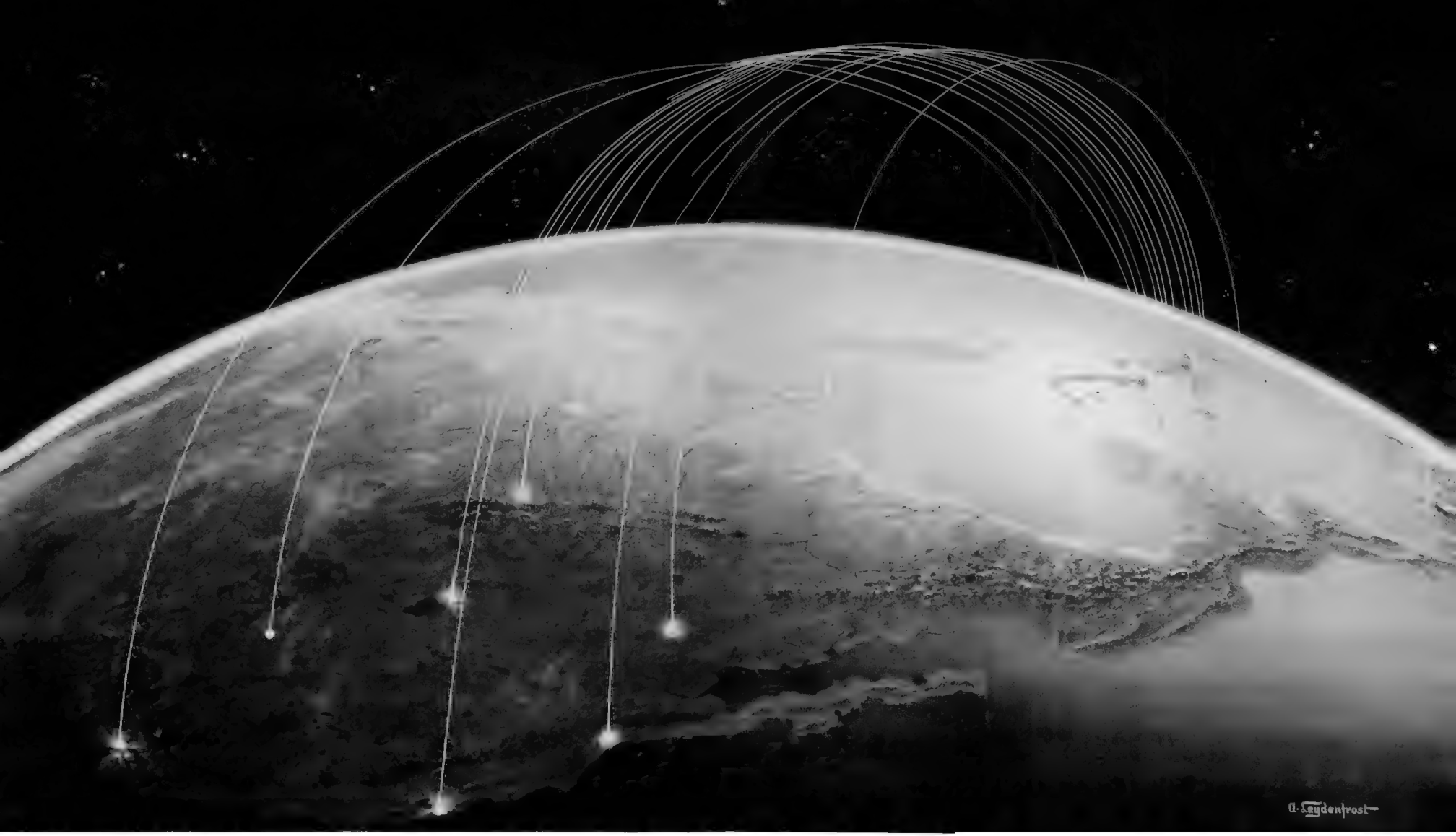


RADAR CENTERS FOLLOW COURSE OF ROCKET WAR

"Radar," said General Arnold, "is an outstanding contribution to the effectiveness of an air force. It is a device which enormously extends . . . human vision." In the picture above, radar has been applied to the war of the rockets. A radar beam of enormous power sweeps the sky so that even objects thousands of miles in space send back radio echoes. The echoes are then translated into images on the luminous screen. If such a radar were in use, it would give the U.S. about 30 minutes to get ready for the attack shown on these pages.

But even 30 minutes is too little time for men to control the weapons of an atomic war. Radar would detect enemy rockets, plot their course and feed data to electronic calculators in defensive rockets. These would then be launched in a matter of seconds to intercept the attackers (*see opposite page*).

Radar, however, would at best be a spotty defense in future wars. Like human sight, it extends only to the horizon. Low-flying robot planes like the German buzz-bomb might evade it more effectively than high-flying rockets. And radar would be no proof at all against time bombs of atomic explosive which enemy agents might assemble in the U.S.



THE ATOM BOMBS DESCEND ON U.S.

The start of another war, said General Arnold, might come with shattering speed: "With present equipment an enemy air power can, without warning, pass over all formerly visualized barriers and can deliver devastating blows at our population centers and our industrial, economic or governmental heart even before surface forces can be deployed."

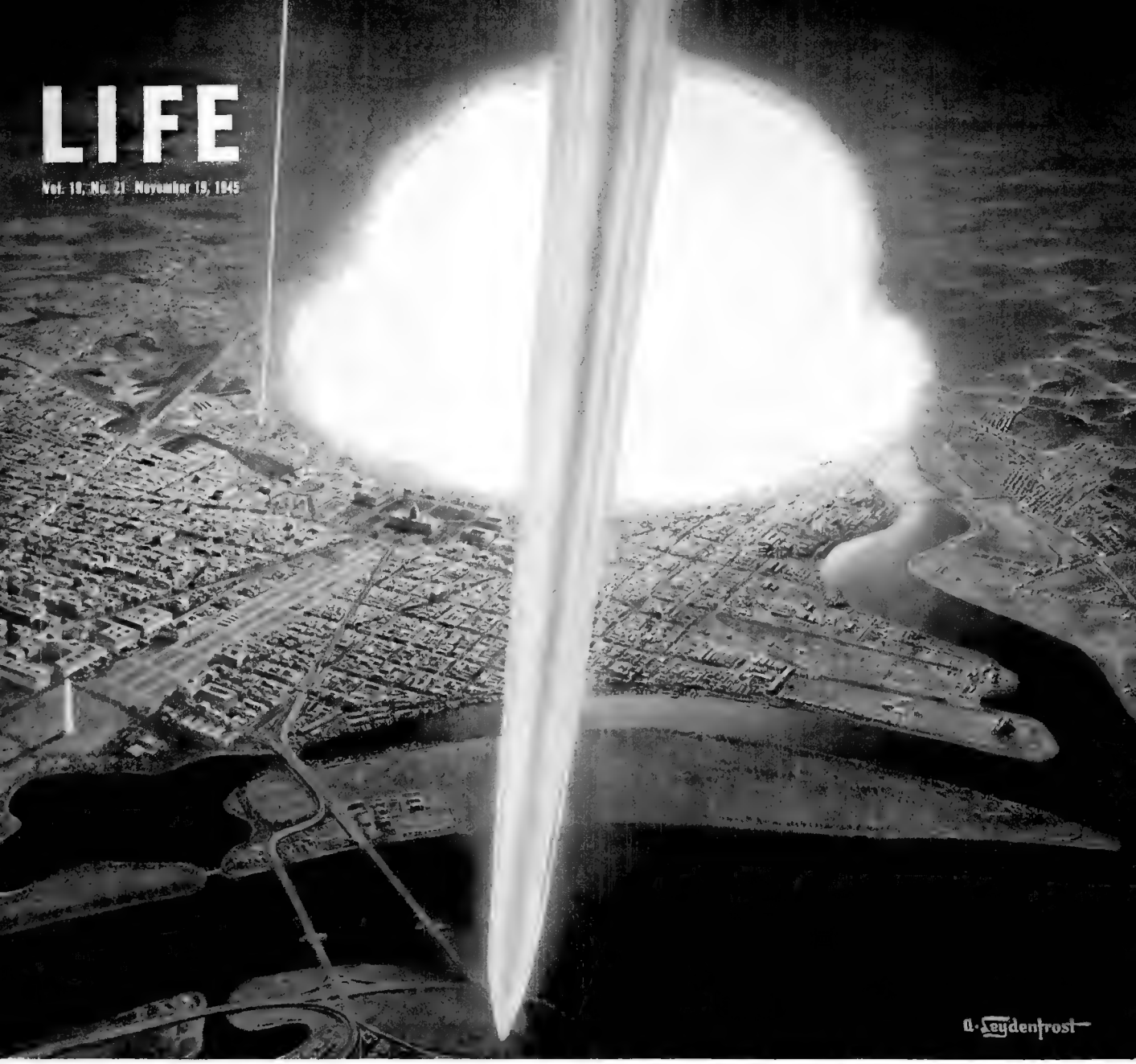
In the panorama above, looking eastward from 3,000 miles above the Pacific, LIFE's artist has shown the U.S. as it might appear a very few years from now, with a great shower of enemy rockets falling on 13 key U.S. centers. Within a few seconds atomic bombs have exploded over New York, Chicago, San Francisco, Los Angeles, Philadelphia, Boulder Dam, New Orleans, Denver, Washington, Salt Lake City, Seattle, Kansas City and Knoxville. One bomb (*second from left*) has been exploded high above the earth by a U.S. defensive rocket (*see illustration on page 31*). In the cities more than 10,000,000 people have been instantly killed by the bombs. The enemy's purpose is not to destroy industry, which is an objective only in long old-fashioned wars like the last one, but to paralyze the U.S. by destroying its people.

The rockets above, white-hot from traveling part of their journey through the atmosphere at three miles a second, have in a little more than an hour soared 1,800 miles up and some 8,000 miles around the earth from equatorial Africa. There an enemy of the U.S. has built its rocket-launching sites quickly and secretly in the jungle to escape detection by the UNO Security Council. In their flight the rockets coast most of the way through empty space, where the stars are out at noon. The thin luminous band on the horizon is the earth's atmosphere.

CONTINUED ON NEXT PAGE

XR

LIFE
Vol. 19, No. 21 November 19, 1945



THE 36-HOUR WAR BEGINS WITH THE ATOMIC BOMBARDMENT OF KEY U.S. CITIES. HERE A SHOWER OF WHITE-HOT ENEMY ROCKETS FALLS ON WASHINGTON, D.C.

THE 36-HOUR WAR

ARNOLD REPORT HINTS AT THE CATASTROPHE OF THE NEXT GREAT CONFLICT

This week General Henry H. Arnold, commanding officer of the Army Air Forces, published his third formal report to the Secretary of War. The report was not only a history of Air Forces activities at the end of the late war but a warning of future wars. Said the general: "In the past, the United States has shown a dangerous willingness to be caught in a position of having to start a war with equipment and doctrines used at the end of a preceding war. . . . Military Air Power should . . . be measured to a large extent by the ability of the existing Air Force to absorb in time of emergency . . . new ideas and techniques."

The Army Air Forces, said General Arnold, were fully prepared to absorb new ideas: "We can run a large air operation for the sole purpose of delivering one or two atomic bombs. . . . When improved antiaircraft defenses make this impracticable, we should be ready with a weapon of the general type of the German V-2 rocket, having greatly improved range and precision. . . ."

Such weapons as these, in the hands of other nations as well as the U.S., would make possible the ghastliest of all wars. Hostilities would begin with the explosion of atomic bombs in cities like London, Paris, Moscow or Washington (*above*). The destruction caused by the bombs would be so swift and terrible that the war might well be decided in 36 hours. The illustrations on these pages show how such a war might be fought if it came.

But General Arnold did not suggest that improved weapons were the only safeguard of the U.S. It would be better, he said, to use bombs for peace now rather than for war later, possibly by using them as a power to enforce decisions of the United Nations Organization's Security Council.

WISDOM HOUSE

GIANT G-1

50¢

IT CAN HAPPEN HERE!

THE DAY THE COMMUNISTS TOOK OVER AMERICA

by ISABEL MOORE

What will happen to YOU —
YOUR MONEY — YOUR HOME — YOUR JOB?

Interviews with top military, government, intelligence agencies tell you how to prepare for this fatal day in the first book of its kind ever published.

WISDOM HOUSE THE TIMELY BOOKS

XR

URANIUM RUSH®

An exciting new electric game for the family

Make a million dollars!

YOUR 'GEIGER COUNTER' LIGHTS AND BUZZES YOUR WAY TO FUN AND FORTUNE

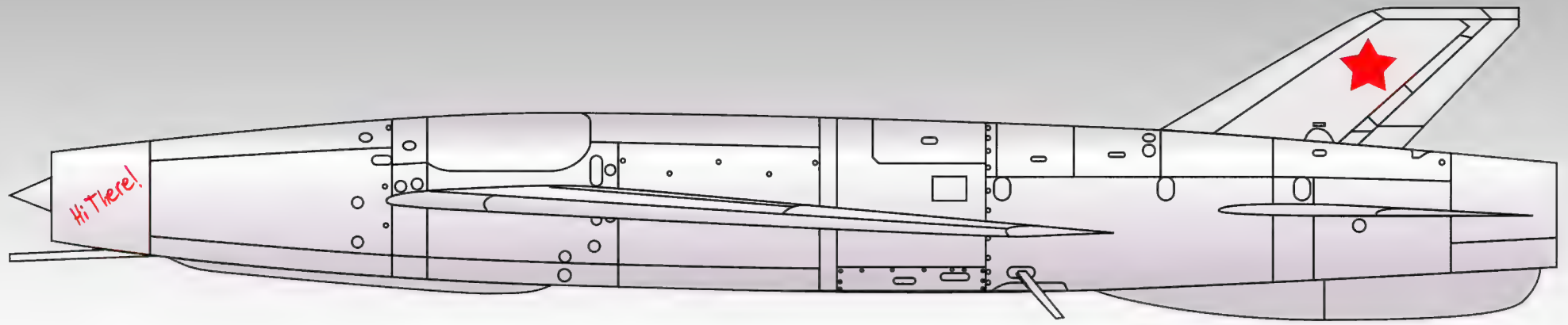
When God Splits
THE
ATOM

· COL. CHUCK YEAGER ·

RESCUE
SERVICE
RESCUE
CD
CD

XR

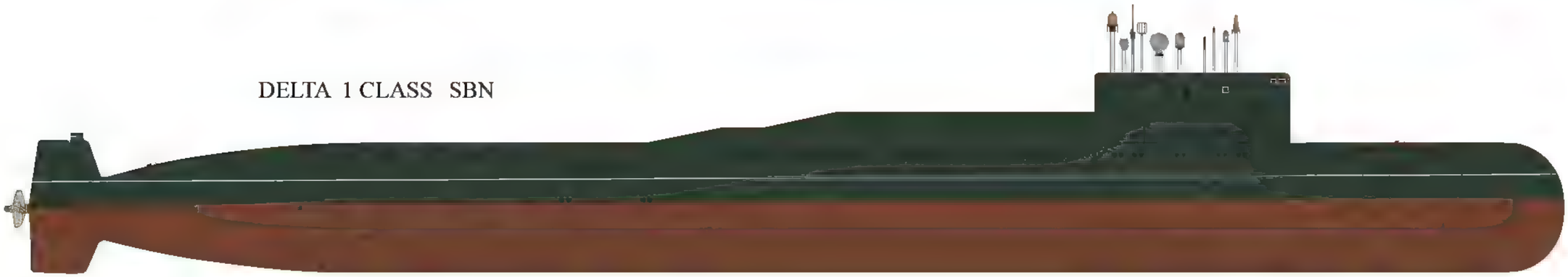
Raduga Kh-20 (NATO reporting name: AS-3 Kangaroo)



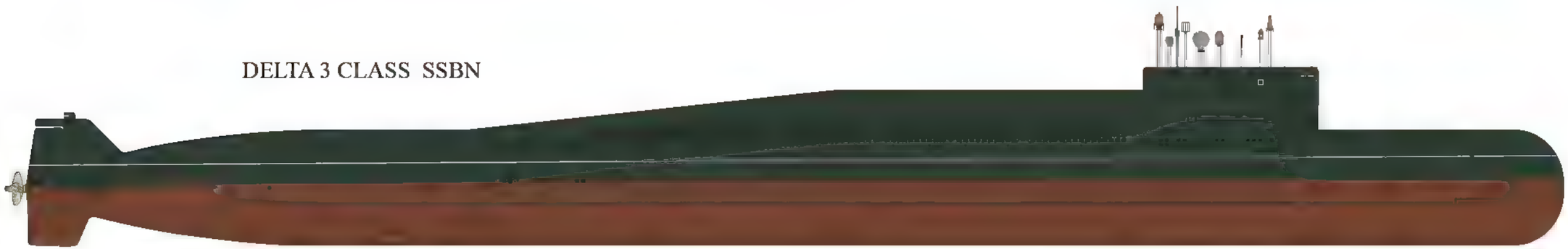
Wingspan: 9.15 m
Length: 14.95 m
Diameter: 1.81 m
Height: 3.02 m
Empty weight: 5,878 kg
Launch weight: 12,000 kg
Engine: 1x Lyulka AL-7FK turbojet
Cruise speed: Mach 2.0
Cruise ceiling: Target-dependent, up to 20,000 m
Range: 380–600 km
Guidance: Inertial with remote correction over radio
Warhead: 2,300 kg thermonuclear, 0.8-3.0 mt

OSCAR 1 CLASS SGN

DELTA 1 CLASS SBN



DELTA 3 CLASS SSBN

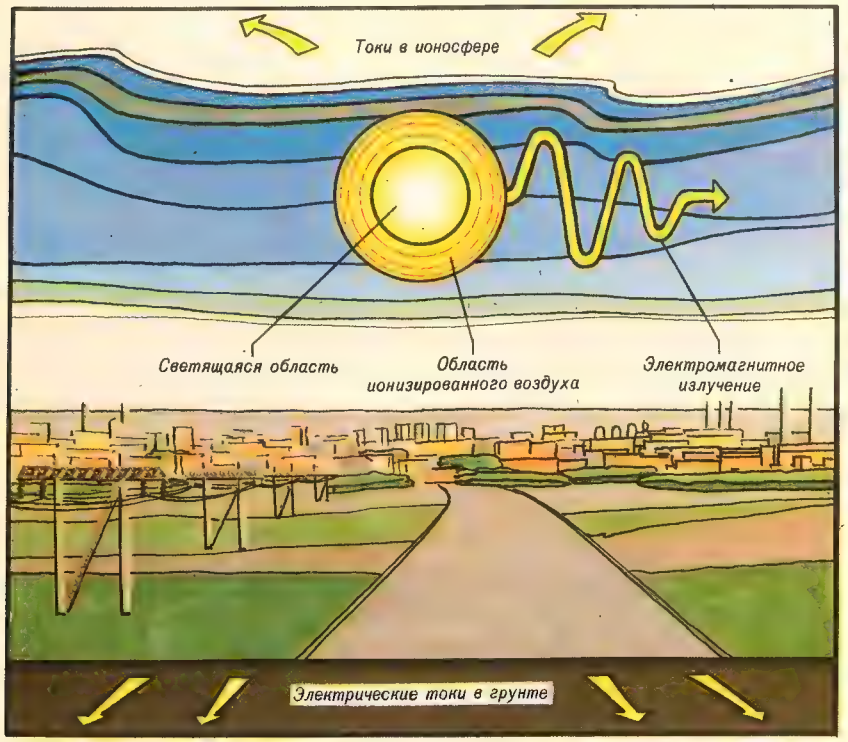


XR

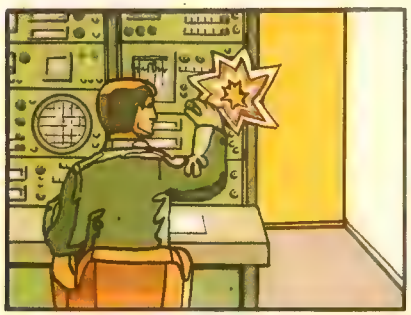
NACA

UNITED STATES AIR FORCE

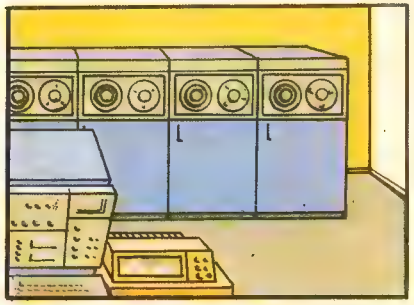
КРАТКОВРЕМЕННЫЕ РЕЗУЛЬТИРУЮЩИЕ ЭЛЕКТРИЧЕСКИЕ И МАГНИТНЫЕ ПОЛЯ, ВОЗНИКАЮЩИЕ ВО ВРЕМЯ ЯДЕРНОЙ РЕАКЦИИ ВСЛЕДСТВИЕ РАСПАДА АТОМОВ, ПРЕДСТАВЛЯЮТ СОБОЙ ЭЛЕКТРОМАГНИТНЫЙ ИМПУЛЬС (ЭМИ) ЯДЕРНОГО ВЗРЫВА. ЭЛЕКТРОМАГНИТНЫЕ ПОЛЯ СОЗДАЮТ ИМПУЛЬСНЫЕ ЭЛЕКТРИЧЕСКИЕ ТОКИ И НАПРЯЖЕНИЯ В ВОЗДУШНЫХ И НАЗЕМНЫХ ПРОВОДНЫХ И КАБЕЛЬНЫХ ЛИНИЯХ, А ТАКЖЕ РАДИОИЗЛУЧЕНИЯ, РАСПРОСТРАНЯЮЩИЕСЯ НА БОЛЬШИЕ РАССТОЯНИЯ



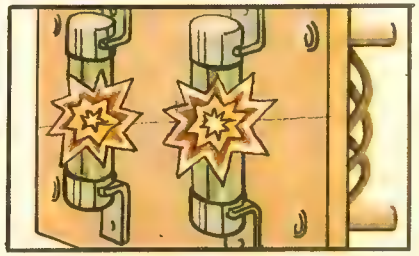
ВОЗНИКШИЕ ПРИ ЯДЕРНЫХ ВЗРЫВАХ ПЕРЕНАПРЯЖЕНИЯ СПОСОБНЫ:



выводить из строя аппаратуру и поражать обслуживающий персонал



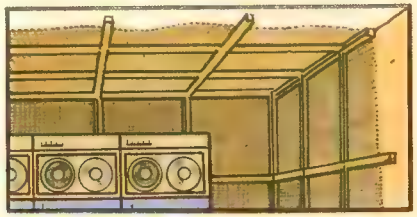
искажать, полностью стирать магнитные записи, лишать «памяти» ЭВМ



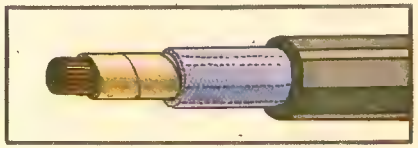
вызывать короткие замыкания в электро- и радиотехнических устройствах, массовое срабатывание средств защиты

СПОСОБЫ ЗАЩИТЫ ОТ ЭЛЕКТРОМАГНИТНОГО ИМПУЛЬСА

Воздействие электромагнитного импульса на наружные и внутренние линии аппаратуры резко снижается при применении специальных мер защиты

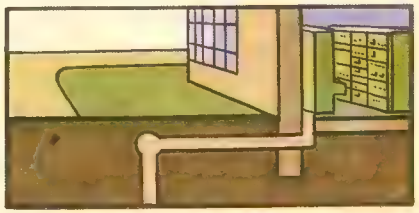


Наиболее эффективным способом защиты радиоэлектронной аппаратуры, расположенной в сооружениях, является использование электропроводящих (металлических) экранов, значительно снижающих наводимые напряжения

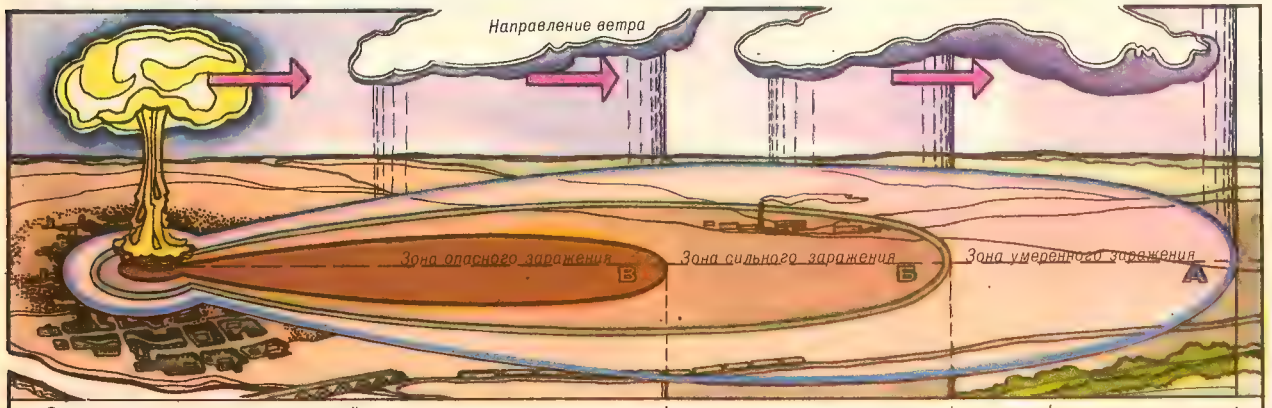


Применение экранированных кабелей; выполнение радио- и электротехнических устройств поблочно, с защитой каждого блока и всего устройства в целом

Надежное заземление аппаратуры



РАДИОАКТИВНОЕ ЗАРАЖЕНИЕ ВОЗНИКАЕТ В РЕЗУЛЬТАТЕ ВЫПАДЕНИЯ РАДИОАКТИВНЫХ ВЕЩЕСТВ ИЗ ОБЛАКА ЯДЕРНОГО ВЗРЫВА. МЕСТНОСТЬ СЧИТАЕТСЯ ЗАРАЖЕННОЙ ПРИ МОЩНОСТИ ЭКСПОЗИЦИОННОЙ ДОЗЫ ОТ $3{,}6 \cdot 10^{-8}$ А/кг (0,5 Р/ч) И ВЫШЕ



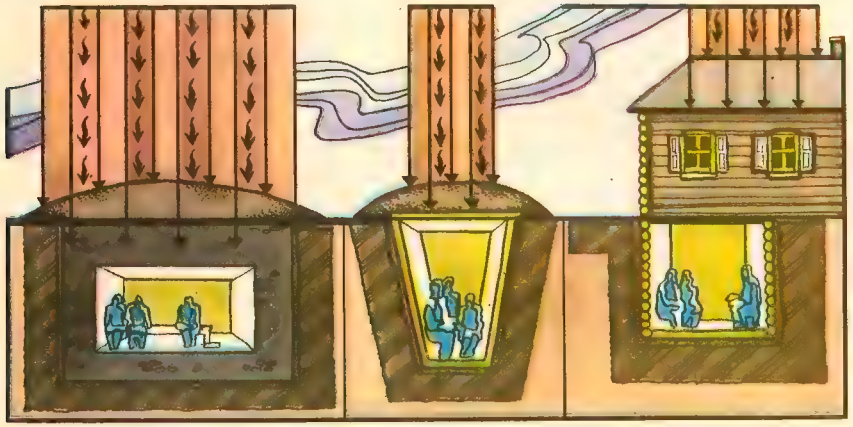
Экспозиционная доза на внешней границе зоны, Кл/кг (Р)	0,3120 (1200)	0,1040 (400)	0,0104 (40)
Мощность экспозиционной дозы через час после взрыва, А/кг (Р/ч)	$17{,}28 \cdot 10^{-8}$ (240)	$576 \cdot 10^{-8}$ (80)	$57{,}6 \cdot 10^{-8}$ (8)

СТЕПЕНИ ЛУЧЕВОЙ БОЛЕЗНИ В ЗАВИСИМОСТИ ОТ ДОЗЫ ОБЛУЧЕНИЯ

ДОЗА ОБЛУЧЕНИЯ, Кл/кг (Р)	СТЕПЕНЬ ЛУЧЕВОЙ БОЛЕЗНИ
0,026—0,052 (100—200)	Первая – легкая
0,052—0,078 (200—300)	Вторая – средней тяжести
0,078—0,130 (300—500)	Третья – тяжелая
Более 0,130 (500)	Крайне тяжелая

Допустимые дозы облучения людей: однократные в течение первых 10—30 суток – 0,026 Кл/кг (100 Р)

ЗАЩИТА ЛЮДЕЙ ОТ РАДИОАКТИВНОГО ЗАРАЖЕНИЯ ДОСТИГАЕТСЯ ИСПОЛЬЗОВАНИЕМ:



убежищ и противорадиационных укрытий, простейших укрытий

Режим радиационной защиты – это порядок действия людей, применение средств и способов защиты в зонах радиоактивного заражения, предусматривающий максимальное уменьшение возможных доз облучения

средств индивидуальной защиты

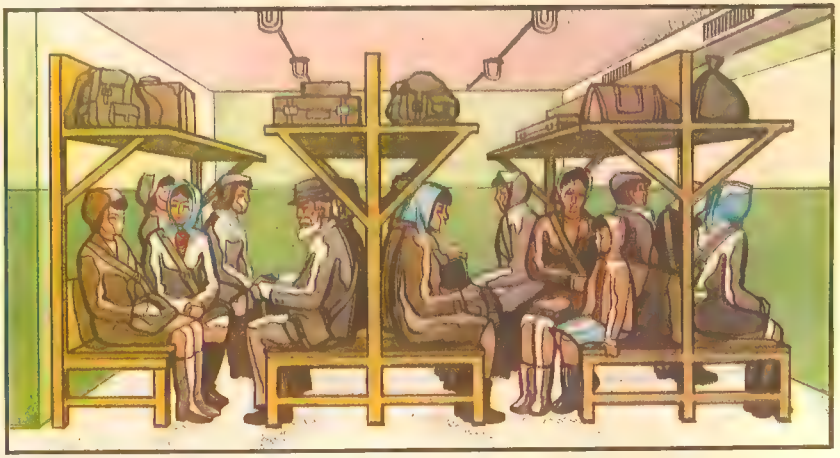
соблюдением режима радиационной защиты населения

ПРОНИКАЮЩАЯ РАДИАЦИЯ — ЭТО ПОТОК ГАММА-ЛУЧЕЙ И НЕЙТРОНОВ, ИЗЛУЧАЕМЫХ В ОКРУЖАЮЩУЮ СРЕДУ ИЗ ЗОНЫ ЯДЕРНОГО ВЗРЫВА В ТЕЧЕНИЕ НЕСКОЛЬКИХ СЕКУНД. У ЛЮДЕЙ И ЖИВОТНЫХ ПРОНИКАЮЩАЯ РАДИАЦИЯ ВЫЗЫВАЕТ ЛУЧЕВУЮ БОЛЕЗНЬ РАЗНОЙ СТЕПЕНИ ТЯЖЕСТИ

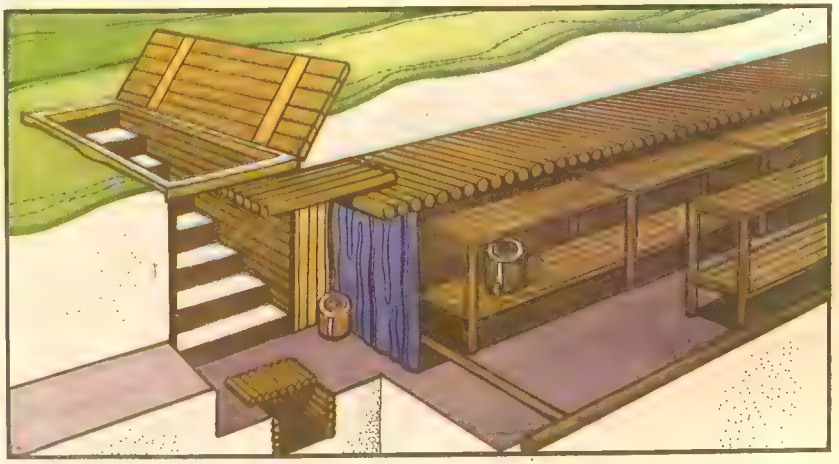
Гамма-излучение составляет основную часть проникающей радиации. Источником нейтронов при ядерном взрыве является цепная реакция
Проникающая радиация, распространяясь в той или иной среде, ионизирует ее атомы

В последующем источником гамма-излучения становится радиоактивное облако взрыва
Общее время действия проникающей радиации составляет 15—25 с с момента взрыва

ЗАЩИТОЙ ОТ ПРОНИКАЮЩЕЙ РАДИАЦИИ ЯВЛЯЮТСЯ:

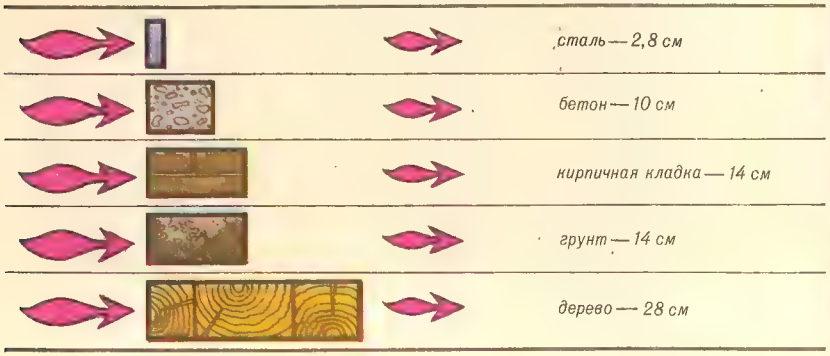


убежища



противорадиационные укрытия

ПРОНИКАЮЩУЮ РАДИАЦИЮ ОСЛАБЛЯЮТ В 2 РАЗА МАТЕРИАЛЫ ТОЛЩИНОЙ:



XR

PROFILE

SAC's first jet bomber

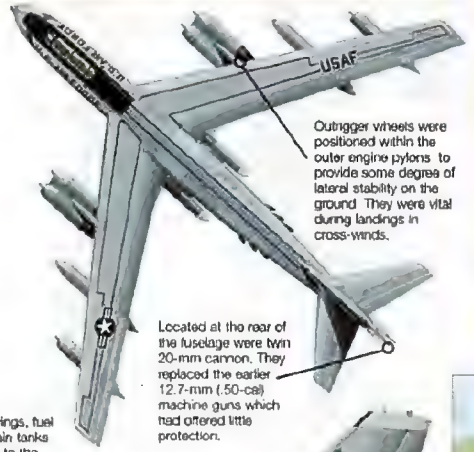
The Boeing B-47 Stratojet defeated several rivals to become the US Air Force's choice as its principal strategic bomber of the 1950s. Stratojets began to arrive at SAC bases in October 1951. The Stratojet was the first swept-wing jet bomber ever produced. It was appealing to the eye and had breathtaking performance, but the cramped cockpit arrangement was awkward and crew fatigue on long missions was a problem.

Many B-47s stayed on nuclear alert, ready to launch with their deadly cargo of atomic bombs. Some participated in Reflex deployments between the United States and Great Britain in support of worldwide strategic readiness. In 1959, Stratojets participated in Operation Oil Burner, practising low-level strike runs to penetrate below enemy radar detection while still accurately delivering nuclear weapons to their strategic targets.

Though it was stressful on crews, the B-47 was much-loved by nearly all who maintained and flew it.

Eventually replaced by the B-52 Stratofortress, the B-47 remained in operation with SAC until the 1960s. The last bomber version was retired on 11 February 1966, but the reconnaissance RB-47 variants remained on duty with the 55th SRW until 29 December 1967.

Above: A sight repeated right across the continental United States: two SAC Stratojets await their alert call to action.


USAF
Outrigger wheels were positioned within the outer engine pylons to provide some degree of lateral stability on the ground. They were vital during landings in cross-winds.
Located at the rear of the fuselage were twin 20-mm cannon. They replaced the earlier 12.7-mm (.50-cal) machine guns which had offered little protection.

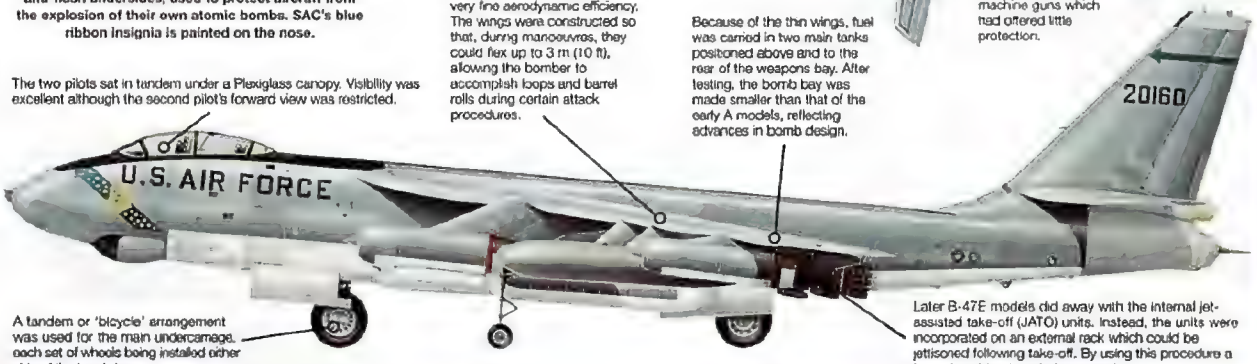
B-47E-I STRATOJET

This B-47 Stratojet displays the late scheme of white anti-flash undersides, used to protect aircraft from the explosion of their own atomic bombs. SAC's blue ribbon insignia is painted on the nose.

The two pilots sat in tandem under a Plexiglass canopy. Visibility was excellent although the second pilot's forward view was restricted.

The 35° swept-back wing was thin and had an extremely high aspect ratio. It proved to have very fine aerodynamic efficiency. The wings were constructed so that, during manoeuvres, they could flex up to 3 m (10 ft), allowing the bomber to accomplish loops and barrel rolls during certain attack procedures.

Because of the thin wings, fuel was carried in two main tanks positioned above and to the rear of the weapons bay. After testing, the bomb bay was made smaller than that of the early A models, reflecting advances in bomb design.



A tandem or 'bicycle' arrangement was used for the main undercarriage, each set of wheels being installed either side of the bomb bay.

Later B-47E models did away with the internal jet-assisted take-off (JATO) units. Instead, the units were incorporated on an external rack which could be jettisoned following take-off. By using this procedure a larger bombload could be carried.

B-47E Stratojet

Type: long-range strategic bomber

Powerplant: six General Electric J47-GE-25/25A turbojets, each developing 32.03 kN (7207 lb thrust) with water injection

Maximum speed: 975 km/h (606 mph) at 4970 m (16,306 m)

Cruising speed: 806 km/h (501 mph) at 11,735 m (38,500 ft)

Ceiling: 12,345 m (40,500 ft)

Range: 6437 km (4000 miles)

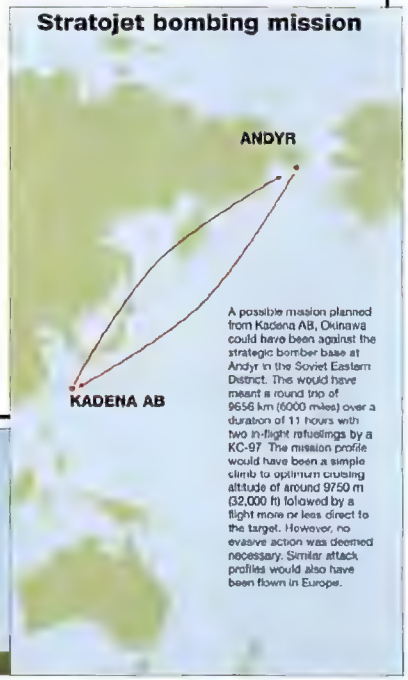
Weights: empty 36,630 kg (80,755 lb); maximum take-off 89,893 kg (198,180 lb)

Armament: two M24A1 20-mm cannon, each with 350 rounds of ammunition, in radar-directed, remotely-controlled tail turret, plus up to 9071 kg (20,000 lb) of bombs carried internally

Dimensions:

span	35.36 m (116 ft)
length	33.48 m (109 ft 11 in)
height	8.51 m (27 ft 11 in)
wing area	132.66 m² (1428 sq ft)

Stratojet bombing mission



A possible mission planned from Kadena AB, Okinawa could have been against the strategic bomber base at Andyr in the Soviet Eastern District. This would have meant a round trip of 9656 km (6000 miles) over a duration of 11 hours with two in-flight refuellings by a KC-97. The mission profile would have been a simple climb to optimum cruising altitude of around 9750 m (32,000 ft) followed by a flight more or less direct to the target. However, no evasive action was deemed necessary. Similar attack profiles would also have been flown in Europe.

Stratojet bombing mission

1 In-flight refuelling: So that the B-47 Stratojet could attack targets at great distance, the aircraft would refuel from a KC-97 tanker aircraft.

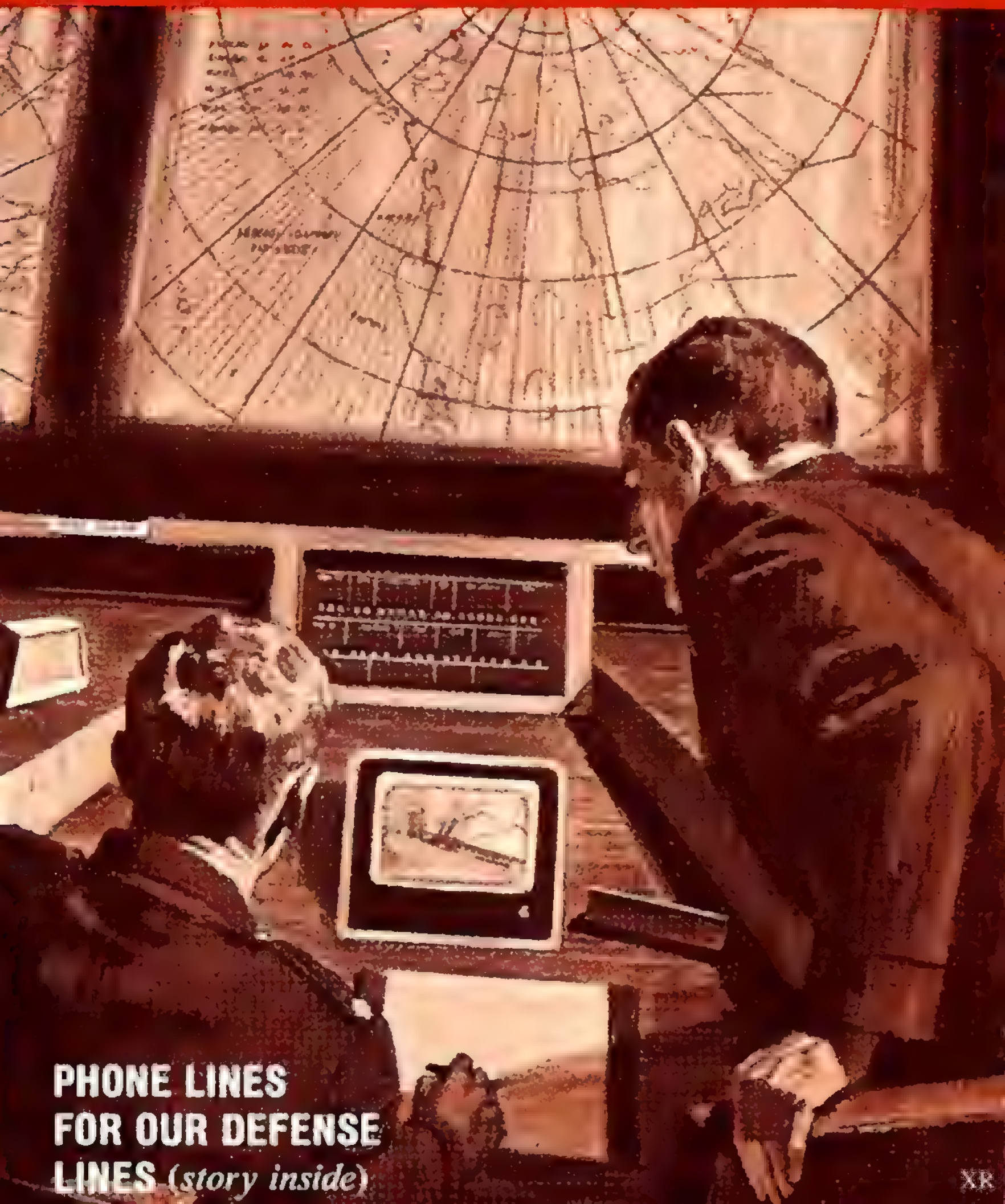
2 High performance: In its day the B-47 was able to outrun enemy fighters, although some SAC reconnaissance versions did return to base after missions having received damage from MiG-15s.

3 Bomb run: Capable of delivering a vast range of weapons, the Stratojet would use a variety of manoeuvres to avoid nuclear blast when dropping its ordnance.

FITZ
DANGER

TELEPHONE NEWS

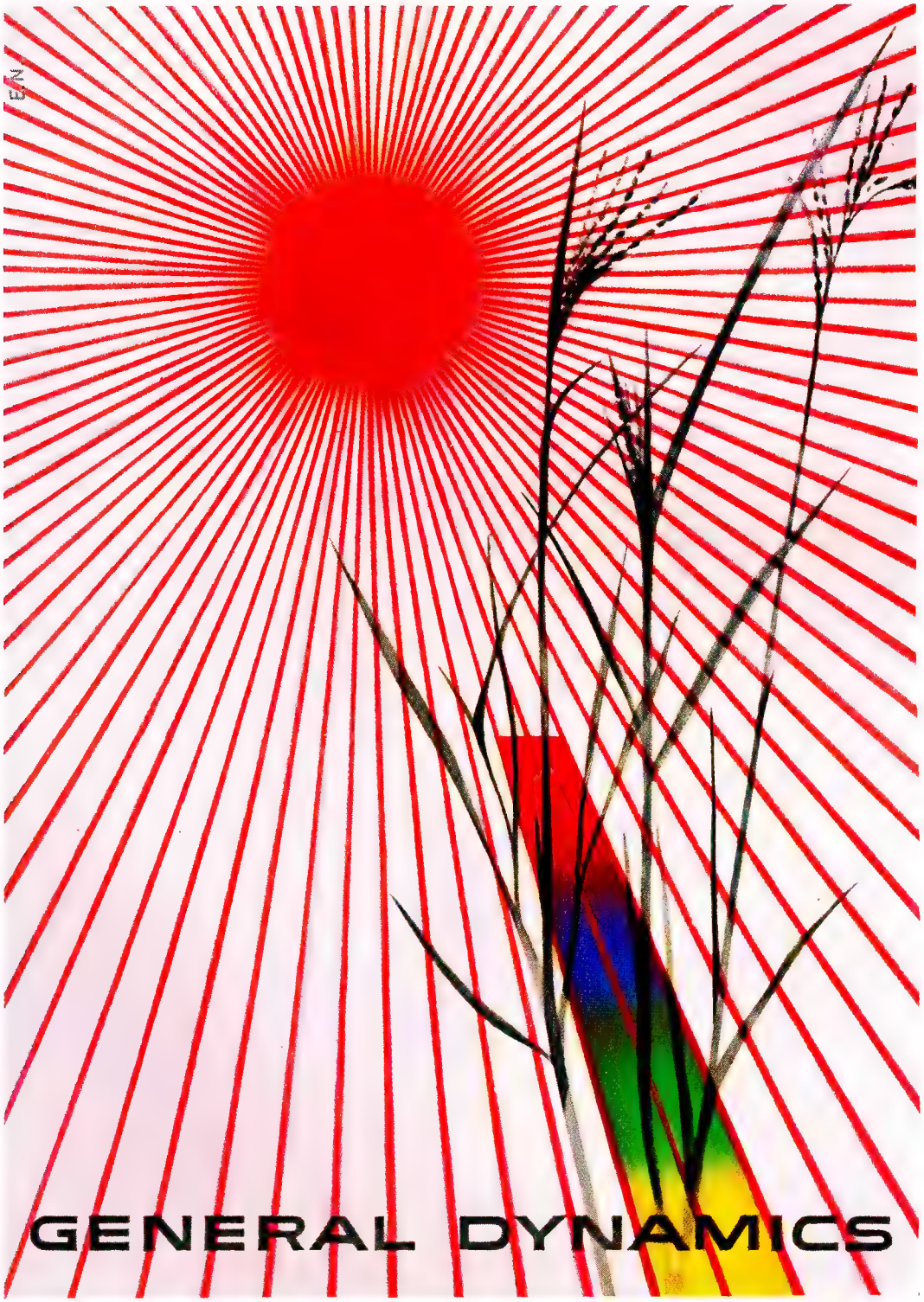
OCTOBER 1964



PHONE LINES FOR OUR DEFENSE LINES *(story inside)*

XR

Power for Peace . . . Gandhi said: "*To the millions who have to go without two meals a day the only acceptable form in which God dare appear is food.*" Creative uses of atomic radiation in agriculture can help give more and better food to all peoples, everywhere. Atomic contributions to the agricultural development of undernourished nations, with "no strings attached", will offer new proof to the world that we practice the brotherhood we preach.



GENERAL DYNAMICS CORPORATION • 445 PARK AVENUE, NEW YORK 22, N. Y.

GD GENERAL DYNAMICS

DIVISIONS

C-L CANADAIR LIMITED

EB ELECTRIC BOAT

GA GENERAL ATOMIC

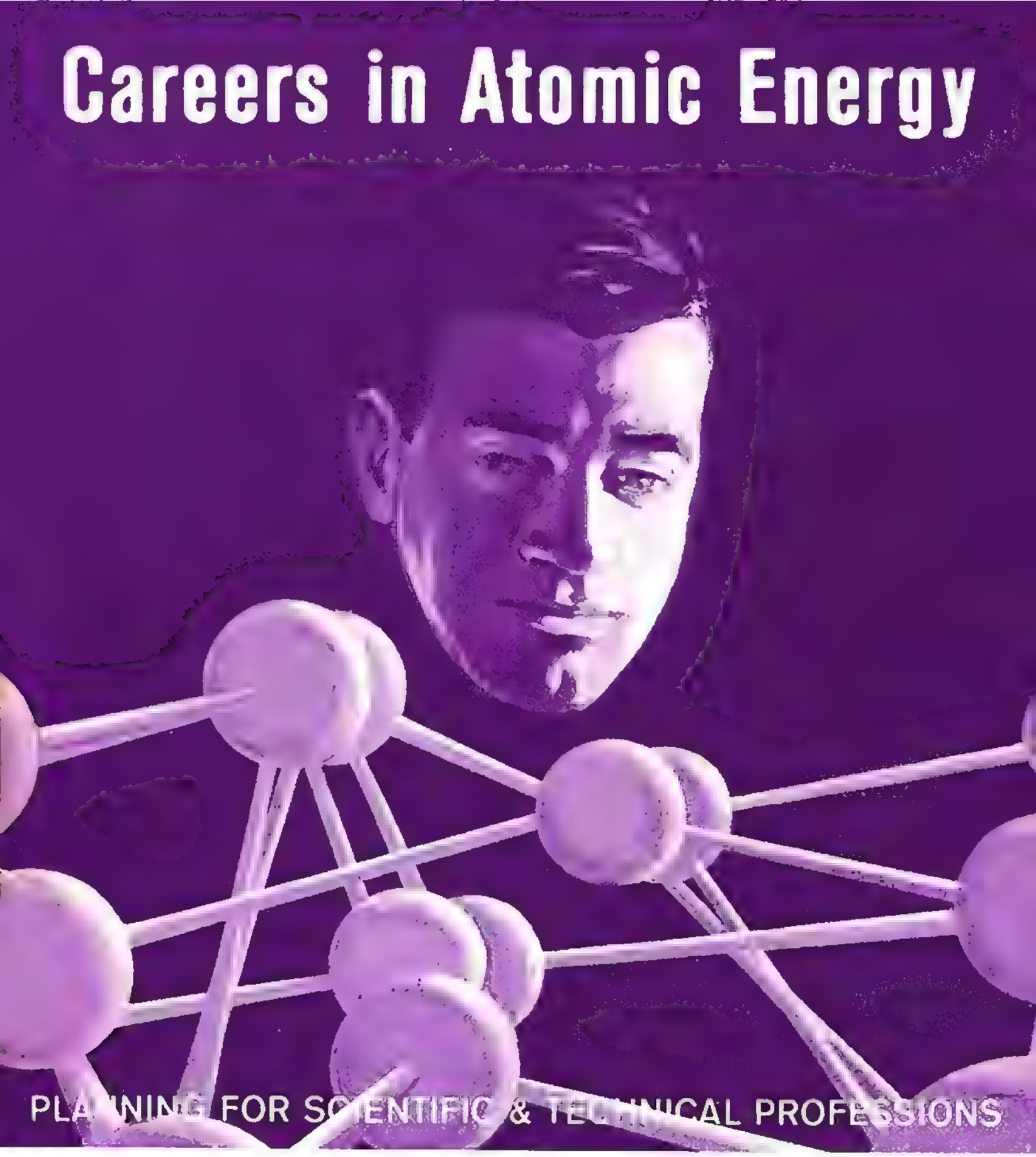
ED ELECTRO DYNAMIC

C-V CONVAIR

S-C STROMBERG-CARLSON

PM XR

Careers in Atomic Energy



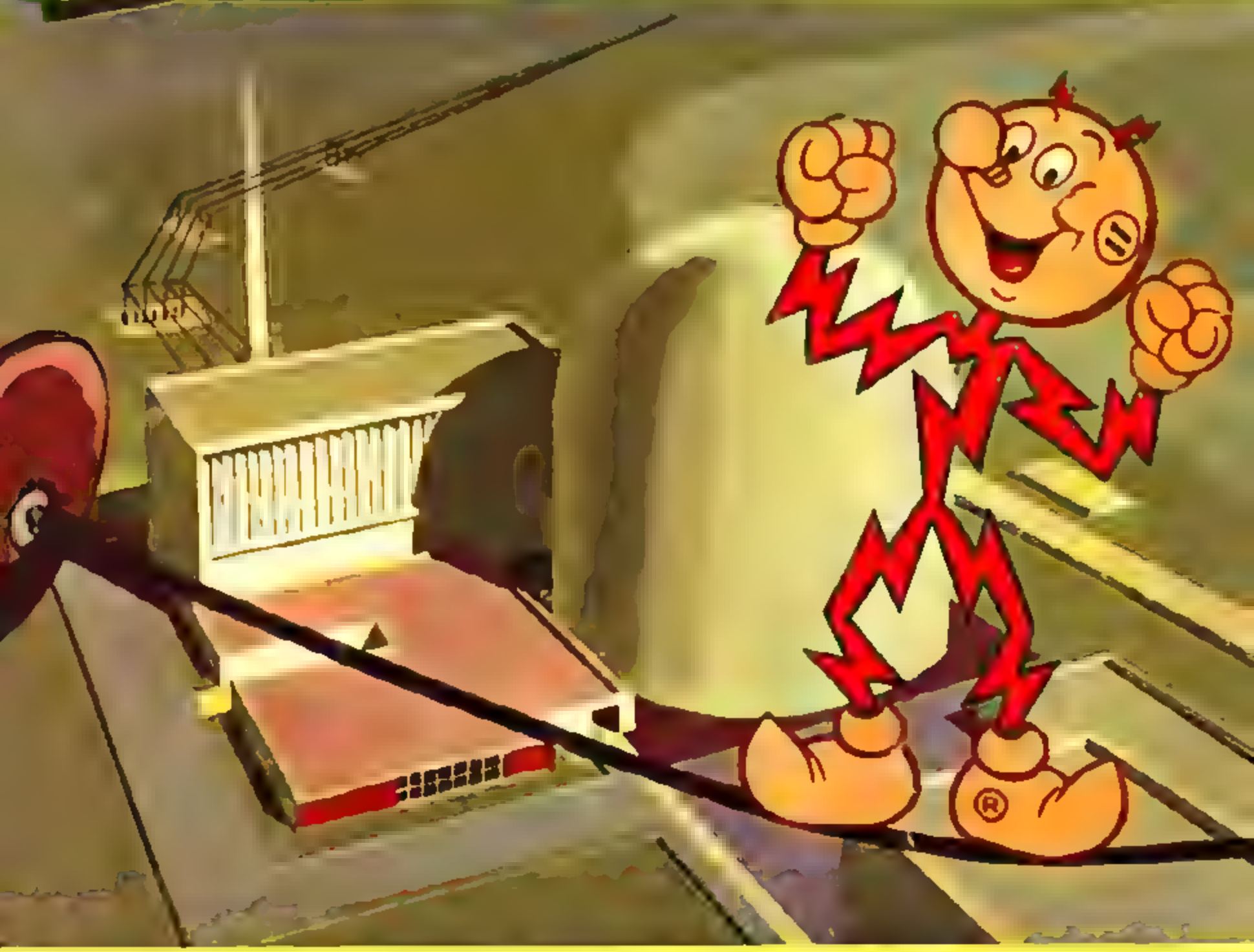
PLANNING FOR SCIENTIFIC & TECHNICAL PROFESSIONS

U.S. ATOMIC ENERGY COMMISSION / Division of Technical Information

XR

The MIGHTY ATOM

Starring Reddy Kilowatt



The Story of ELECTRICITY
from AMBER to ATOMS

XR

AIR INTELLIGENCE AGENCY

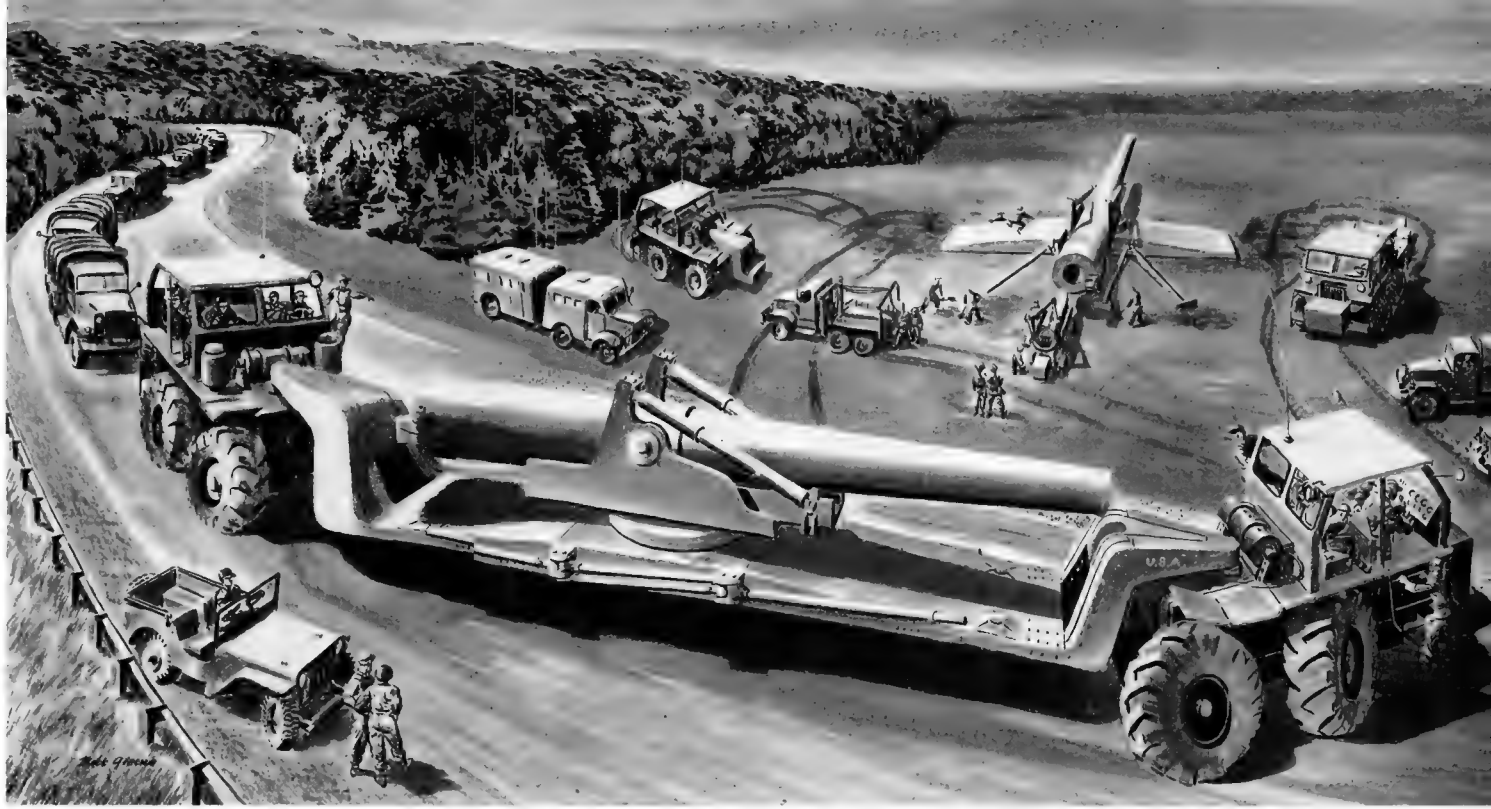
BEFORE IT IS TOO LATE !
AIR RAID SIRENS
Don't let it happen here
INVASION U.S.A.

THE MEN BEHIND THE GUN

The six officers most responsible for developing atomic artillery stand grouped around a box containing a classified model of the gun. Left to right, they are: Lieut. Colonel Henry van Ormer, who first formally proposed an atomic gun; General John E. Hull, then chief of the Weapons System Evaluation Group, which approved the plans for production and laid down specifications; Army Chief of Staff J. Lawton Collins, who made atomic artillery a major project; Major General Kenneth D. Nichols, chief for Army Plans and Research; Colonel Angelo Del Campo, who designed the gun; and Brig. General Leslie Simon, director of Research and Development for Army Ordnance. Their achievement has been called "the first safe and accurate means of furnishing atomic support on the battlefield."

THE WORLD'S FIRST ATOMIC ARTILLERY

ARMY CHIEF COLLINS UNVEILS DEADLIEST GUN



THE ATOMIC GUN is shown in this LIFE drawing based on description released by AEC. Gun is readily transported from one place to another on huge flatcar (*foreground*) which is powered by two engine cabs, one pulling, the other pushing. When unit reaches destination the cabs pull flatcar into proper position for firing (*background*). Detached from cabs, flatcar is lowered to ground on hydraulic cushions. Gun can be unloaded and fired in surprisingly short space of time.

IN a desolate, restricted area of an Army camp somewhere in the U.S., a small group of high-ranking Pentagon officers stared in amazement as a mechanical monster roared down the road and came to a stop beside them. It looked somewhat like a railroad flatcar with an engine at each end, one pulling, the other pushing. Resting on the flatcar between the engine cabs was a long, thick-barreled gun.

As the officers watched, the two engine cabs swung around 90° and dragged the huge flatcar sideways into an open field. Soldiers jumped from the cabs to unlock a set of connecting links, and another soldier on the back of a cab pulled a lever. Cushioned by hydraulic stops, the flatcar settled slowly to earth. While the disconnected cabs drew off to one side, the gun crew pointed the long, thick barrel skyward. A big shell was jammed into place by the gun's power-rammer and at a signal from the officer in charge the gun roared. Orange and red flame streaked from the barrel while a hydropneumatic recoil system absorbed most of the tremendous kick of the gun. The earth trembled. Huge shells were thrown far down the artillery range.

When the firing stopped, the crew trained the gun back in its original position on the flatcar. The engine cabs backed into place beside it. As a soldier pulled another lever, the platform rose and the connecting links were reinserted. The cabs dragged the flatcar sideways to the road, then swung around again so that the entire massive machine was in a straight line. With a roar of gears and motors it disappeared down the road.

The high Army brass drove away in their jeep, silenced by their amazement. They had just witnessed a sight few officers in the entire Army have seen: a demonstration of the Army's newest and most formidable weapon—the atomic artillery piece.

The atomic artillery piece, which up to now has been a well-guarded secret, will soon be used for large-scale indoctrination of troops, and the AEC has released enough information to enable LIFE to publish an artist's conception of the gun (*above*), showing its probable appearance and method of operation.

More than most other new weapons, this gun had a long and difficult history. Some scientists hooted at the idea of putting an atomic bomb into the relatively small space of an artillery shell. Military critics said the gun would have to be so huge that it would be immobile and therefore useless in modern warfare. One man who did not agree with these opinions was the Army's Chief of Staff, General J. Lawton Collins. Another was a young colonel in Ordnance named Angelo R. Del Campo. When the question of atomic artillery was finally raised seriously, Del Campo, who had a master's degree in nuclear physics and General Collins' enthusiastic backing, went into action.

From liaison officers of the Atomic Energy Commission he learned the size of the A-bomb mechanism. For six weeks he and an engineer worked in a locked Pentagon room, sketching a prospective atomic artillery shell. When the sketches were finished Del Campo went to Los Alamos to show them to top brains of the AEC. They made objections. Del Campo returned to the Pentagon, listed everybody's requirements and set about meeting them. The AEC wanted a large-caliber shell so as to make the most of the fissionable material. Field Forces wanted a long-range gun. Ordnance wanted a small one. Compromising a little here, a little there, Del Campo reworked his plans. This time the AEC was more approving and General Collins rushed Del Campo's proposal to the Joint Chiefs of Staff. They referred it to the Defense Department's lofty Weapons System Evaluation Group which studies complex military innovations. Under the supervision of quiet, capable General John E. Hull, WSEG worked over Del Campo's plans and finally approved them.

Each piece of the shell had to be designed, built and tested separately, and a gun had to be especially adapted to fire it. At last the master model was ready for testing at Aberdeen. When the very first shell was fired, a small piece in the recoil system failed to function properly, the gun reared, jerked, almost tore loose from its platform and the gun carriage was left a shambles. General Collins promptly ordered the gun rebuilt. Four months later it was fired successfully.

A lost shell and a white cloud

THERE were still many tests to be made, and not all of them went smoothly. Because the dummy shells were so highly secret, each one had to be recovered after it was fired. One day at Aberdeen a shell was fired and lost. For two days the range was closed down while all hands went in search of the erratic missile, finally locating it in a marshland. When he felt ready to show off the gun to outsiders for the first time, General Collins proudly invited a group of AEC commissioners and select members of Congress to a firing range. The clocks were set, the signal given, the shell was fired—and a huge cloud of white smoke enveloped the gun and its crew. The next few minutes were sheer agony for Collins and his staff, who were afraid that the carriage had broken again. But then a loudspeaker explained: the white smoke was only DDT that had been sprayed on the ground to protect the distinguished guests from chiggers.

By last December Collins was able to say of the gun, "It has been tested as a weapon. This does not mean it has been tested as an atomic weapon. It doesn't have to be." In spite of its size, the combined weight of gun, flatcar and cabs is only 75 tons, light enough to cross standard division bridges. It can travel at a speed of 35 mph for 250 miles without refueling. It can be transported in a Navy LSU (Landing Ship Utility) and it can travel cross country with ease. So far the Army has been using dummy shells of the same size and weight as a live shell and equipped with the same triggering mechanism. Ordnance engineers are certain that the performance of these dummies exactly duplicates the performance of a shell loaded with fissionable material. Tests have shown that the new gun is four times more accurate than the ordinary field artillery piece at long ranges.

This accuracy combined with the power of an atomic explosion gives the gun its great military value. Where a plane with an atomic bomb might miss its target or be grounded by bad weather, the atomic gun in any kind of weather can pinpoint its target—an enemy massed for a river crossing or a stubbornly defended stronghold. When not facing such ideal atomic targets the gun could fire other types of shells normally used in big-caliber guns.

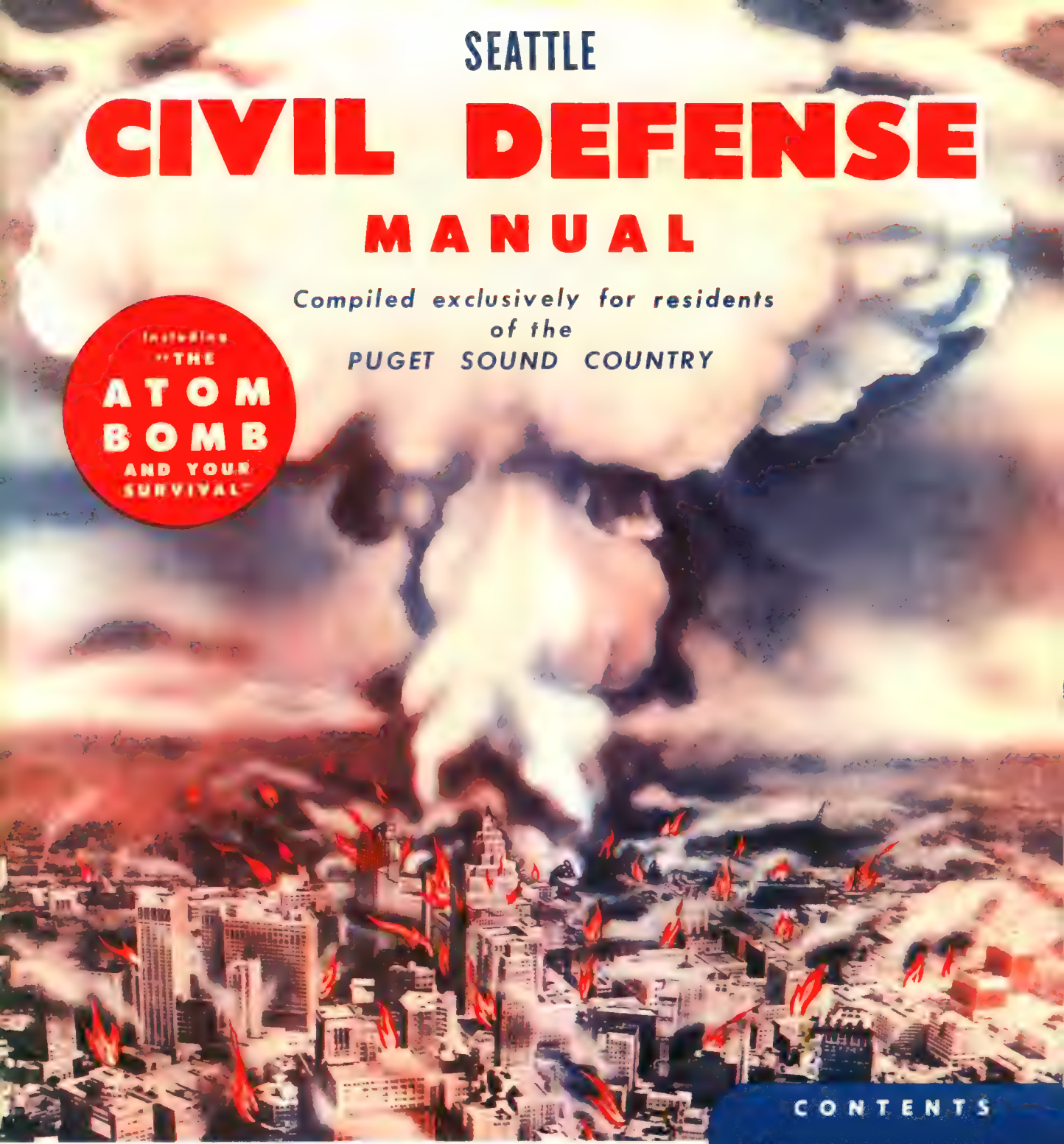
But though the Army's new gun will be the first atomic weapon in the hands of the ground forces, it is by no means the last word. The Army is at work on the still more deadly guided missiles (LIFE, Sept. 24). When guided missiles are perfected the range of atomic artillery may jump to 100 miles, and perhaps even farther. In the meantime, the Army believes that the new atomic artillery piece is one of the finest weapons the world has ever seen.

This year marks the beginning of the atomic era in land warfare. In 1952 thousands of Army officers and enlisted men will receive classroom and field training in the use of tactical atomic power. Many hundreds will see the actual artillery pieces. In fact, by next fall civilian motorists might well encounter one of the monsters rolling down the highway. —CLAY BLAIR JR.

SEATTLE
CIVIL DEFENSE
MANUAL

Compiled exclusively for residents of the PUGET SOUND COUNTRY

Including "THE ATOM BOMB AND YOUR SURVIVAL"



CONTENTS

Atomic Protection Manual

Seattle Defense Information

Subversive Organizations in the United States

Station Personnel, Facilities and Program Photos

Sponsored by Radio Station

KVI
SEATTLE

Mutual — Don Lee Broadcasting System

AND PUBLIC SPIRITED BUSINESS FIRMS IN THIS AREA
IN THE INTEREST OF CIVIL DEFENSE

XR

IN THE FACE OF WORLD TENSION, America is again working against time to build up its Air Power. It is not for us to say how much Air Power this country should have—that is for your military leaders to recommend and Congress to decide. We do, however, feel a responsibility to help you understand the vast complexity of modern aircraft manufacture and operation so that you may realize why the job at hand takes so long and costs so much . . . and why America's security demands a long-range Air Power program in peace as well as war.

GRUMMAN GUARDIAN OF NAVY HUNTER-KILLER TEAM ATTACKS SNORKELING SUBMARINE WITH "HOMING" TORPEDO AS RADOME-EQUIPPED PARTNER STANDS

YOUR NAVY IS TACKLING A LONG, HARD JOB—

BUILDING AN AIR DEFENSE AGAINST SUBMARINES

Early in World War II, allied shipping—our lifeline to troops abroad—was virtually at the mercy of Axis submarines. During 1942, in the Atlantic alone, 219 ships were sunk. Yet two short years later this number had dropped to twenty! The Navy won this battle two ways: detection methods were radically improved and aircraft were teamed up with increased numbers of surface vessels.

Today, America faces an even greater potential menace, for a whole new breed of submarines has now come into being. Bigger, twice as fast, and equipped with "snorkel" breathing devices, they can operate for weeks without surfacing, thus avoiding one trap which doomed their predecessors.

Not only are modern submarines more difficult to detect, but their role has increased enormously. Today's submarines are capable of launching atomic missiles destructive enough to severely damage a city.

Building a defense team against such elusive targets is a long, hard job. First it means endless research to develop super-sensitive detection gear—radar able to pin-point a submarine's snorkel; magnetic devices which locate metallic objects under water; and sonobuoys which "listen" for underseas noise.

Then to employ this complex equipment anywhere in the world, and to destroy submarines after they are located, the Navy and the aircraft industry have had to develop a variety of highly specialized aircraft, including huge, long-range patrol planes, new types of blimps, helicopters, and hunter-killer teams of both land and carrier-based aircraft.

Add to all this the need to train flight crews . . . detection gear technicians . . . ground crews and other highly skilled personnel, and you can see what a tremendously complicated job the Navy is tackling in just this one phase of Air Power.

To succeed, the Navy must have public understanding of the time needed to expand Air Power . . . and a recognition of the hard fact that Air Power must be consistently maintained in peace if it is to be relied upon to help prevent—or meet—the terrible emergency of war.

XR

DEDICATED TO AMERICA'S DEFENSE

Even at night, the system can pick out targets for the Navy's guns.

GENERAL ELECTRIC

XR

XR

Delta Dart

от 49-й истребительной авиаэскадрильи ной группы. В 1969 году 49-ю эскадри- ли вновь, но уже с техникой, переданной (авиабаза Кинчелоу). Подразделение, а с изображением рыцаря в сверкаю- вание «Green Eagles» («Зеленые орлы»), самолетов. К середине 1980-х годов ктивно летавшей на F-106. Первой спи- , которая 12 января 1982 года прибыла вис-Монтен (штат Аризона). Последние туда 9 июля 1987 года.

ервый
тавался
время бо-
кавлива
ту передачи
управле-
зялась со-
тот давал
нта уборки
TSD) рас-
ельно зем
ьличные
льный пе-
ан с соответ
ействял
оники и
не хвата-
ы предна
позволили
нтам РЭП
и на 30%

установку Pratt & Whitney JT4B-22 (в этом случае самолеты соответственно получили бы обозначение F-106C/D). Вариант F-106E/F был еще одной попыткой улучшить возможности машины по обнаружению цели — планировалось установить новую БРЛС. Рассматривались три конфигурации с антеннами диаметром 122 см и новым длинным обтекателем (длина 2,74 м). Проект остался на бумаге.

Более масштабным проектом был F-106X. Модернизированный самолет должен был стать альтернативой Lockheed YF-12 и оттачался новыми силовой установкой, приборным оборудованием, БРЛС и СУВ. Для улучшения управляемости за кабиной предлагалось установить переднее горизонтальное оперение по аэродинамической схеме «утка».

«Все ракеты» серии AIM-4

Поскольку фактическая дальность полета AIM-4F была больше, чем та, при которой ее радиолокационная ГСН могла захватывать цель, то по высоко и быстро летящим целям применяли AIM-4G с тепловой ГСН. На больших скоростях сближения с целью СУВ MA-1 могла готовить к пуску оба типа ракет — сначала AIM-4G, а затем AIM-4F. При выборе режима «Все ракеты» AIM-4G выпускались первыми. В целях дополнительной безопасности AIM-4F размещались в кормовом отсеке.

AIM-4F и AIM-4G выпускались попарно и последовательно — одна ракета всегда была впереди. Пуск УР парами позволял увеличить вероятность поражения цели, но делалось это и потому, что запаса сжатого воздуха пневмосистемы хватало только на три цикла: два цикла для работы створок отсека и пуска УР с направляющих и на один цикл для ракеты AIR-2A. Следовательно, производились три пуска УР: одна AIR-2A, пара AIM-4F и пара AIM-4G.

В боевом строю

30 мая 1959 года первые F-106A поступили на вооружение 539-й эскадрильи ПВО на авиабазу Макгуайр, штат Нью-Джерси, но первым боеготовым подразделением стала 498-я эскадрилья ПВО, базировавшаяся в Генгер-Филде, штат Вашингтон (сегодня здесь находится аэропорт «Спокейн»). Сначала этим перехватчиком планировалось оснастить 40 эскадрилий, всего же F-106A и двухместный F-106B получили 18 подразделений. В 1959 году еще четыре эскадрильи «пересели» на F-106, остальные получили машины в 1960 году. Но в ходе последующего сокращения число эскадрилий с F-106 уменьшилось до 14.

Подразделения авиации Национальной гвардии США, на вооружении которых стояли последние «Десты», начали получать технику в 1972 году. Первой стала 186-я эскадрилья ПВО, штат Монтана, где F-106 эксплуатировались до 1987 года. На этом самолете также летали 194-я эскадрилья ПВО, штат Калифорния (эксплуатация с 1974 по 1984 год), 107-я эскадрилья ПВО, штат Массачусетс (1972—1987 годы), 171-я эскадрилья ПВО, штат Мичиган (1972—1978 годы), 159-я эскадрилья ПВО, штат Флорида (1974—1988 годы) и 119-я эскадрилья ПВО, штат Нью-Джерси (1973—1988 годы), которая стала последней, где в строю находились F-106 (последнюю машину списали 1 августа 1988 года).

Силовая установка

Первоначально на F-102B предполагалось установить ТРД Wright J67, выпускавшийся по лицензии «Bristol Siddeley Olympus» а не Pratt & Whitney J57, но задержка в разработке более чем на 12 месяцев вынудила в 1955 году заменить его на Pratt & Whitney J75, который использовался на прототипах Republic F-105 и Lockheed U-2 (на последнем без форсажа). Коммерческий вариант этого двигателя JT4, устанавливавшийся на межконтинентальных Douglas DC-8 и Boeing 707, имел технические недостатки, но считался безопаснее британского. Невероятная надежность J75-P-17 на F-106 (P-9 на начальных серийных самолетах) стала легендой. Утверждали, что двигатель может работать целых 15 мин без смазки, что он стоек к попаданию птиц и других посторонних предметов и может «потерять» несколько лопаток компрессора без серьезных последствий.

Вооружение

F-106 проектировался как перехватчик советских бомбардировщиков, поэтому исходно оснащался всеми видами ракетного вооружения. Оно размещалось внутри отсека вооружения фюзеляжа, чтобы снизить сопротивление воздуха. Основным видом являлась неуправляемая ракета Mk.Donnel Douglas AIR-2A Genie с 1,5-кт ядерной боеголовкой. Время полета ракеты составляло 12 с, радиус взрыва — 305 м, она находилась в заднем отсеке. Для встречного перехвата цели требовалась управляемая ракета. Фирма «Hughes» разработала для F-106 вариант ядерной AIM-26A Falcon, названной AIM-4 Super Falcon. Вариант вооружения представлял собой пару AIM-4E (в 1969 году заменены на AIM-4F) с полуактивным радиолокационным наведением, они находились в передней части отсека вооружения, а в задней — ракеты Gen e c ИК-наведением. В течение многих лет данная компоновка, называемая Standard Area Intercept 'A', являлась типичной для F-106. Сюда входили и сбрасываемые подвесные баки на 1363 л

F-106

Компоновочная схема

F-106A Delta Dart

1. Приемник воздушного давления
2. Обтекатель РЛС
3. Сканирующая антенна РЛС
4. Привод антенны РЛС
5. Радиолокационный блок СУВ Hughes MA-1
6. Монтажный шпангоут для РЛС
7. Блоки генератора импульсов
8. Антенна TACAN
9. Датчик угла атаки
10. Электронные блоки СУВ MA-1
11. Люк доступа к отсеку электроники
12. Обтекатель инфракрасного датчика
13. Убираемый инфракрасный датчик
14. Панели лобового стекла с можевидными краями
15. Разделитель поля обзора
16. Козырек приборной доски
17. Экран тактического индикатора, расположенного в ногах летчика
18. Наружная ручка фонаря
19. Педали руля направления
20. Передний гермошпангоут
21. Блоки реле электросистемы
22. Ниша передней стойки шасси
23. Створка ниши передней стойки шасси
24. Рулежная фара
25. Колеса передней стойки
26. Двухзвенное цилиндр-шарнирное соединение
27. Антенна УВЧ
28. Передняя стойка шасси
29. Штуцер заправки кислородом с манометром
30. Шарнирный узел вращения стойки шасси с фиксатором
31. Газификатор жидкого кислорода
32. Трубопровод системы кондиционирования кабины
33. Герметический пол кабины
34. Ручка управления
35. Штурвал рулевого управления с органами управления РЛС и ЛА
36. Рычаг управления двигателем
37. Катапультное кресло
38. Экран РЛС
39. Оптический прицел
40. Фонарь кабины
41. Подголовник катапультируемого кресла
42. Пусковые направляющие катапультируемого кресла
43. Задний гермошпангоут кабины
44. Боковая приборная панель
45. Разъем подключения наземного электропитания
46. Доплеровская навигационная РЛС
47. Задний нижний отсек электроники
48. Задние верхние отсеки электроники по правому и левому борту
49. Люк отсека электроники
50. Закабинный отсек
51. Клапан стравливания избыточного давления
52. Пневмоцилиндр фонаря
53. Шарнир фонаря
54. Жалюзи для выхода воздуха
55. Правый воздухозаборник двигателя
56. Лючок доступа к топливному баку
57. Верхний лонжерон
58. Фюзеляжный топливный бак, общий внутренний объем топлива 5731 л
59. Силовой набор фюзеляжа
60. Подфюзеляжный отсек вооружения
61. Манипуляторы блока с ракетами
62. Нижний лонжерон
63. Пластина отсечения пограничного слоя
64. Левый воздухозаборник двигателя
65. Клин регулируемого воздухозаборника
66. Створки отбора воздуха
67. Воздухозаборник системы кондиционирования
68. Силовой набор воздухозаборника
69. Штуцер для заправки топливом под давлением (по правому борту)
70. Пневмоцилиндр переднего пилона
71. Установка воздушного кондиционирования
72. Бачок с противообледенительной жидкостью
73. Выходной воздушный патрубок теплообменника
74. Створка панели дозаправки в воздухе (открыта)
75. Воздушные баллоны пневматической системы
76. Двухканальный воздухозаборник
77. Пневмоцилиндры заднего пилона
78. Отсек ракеты AIR-2 Genie класса «воздух—воздух»
79. Гидроаккумуляторы
80. Бачки с гидравлической жидкостью, дуплексные системы
81. Воздушный канал
82. Силовые шпангоуты фюзеляжа в месте крепления лонжерона крыла
83. Воздухопровод маслоохладителя
84. Обтекатель
85. Входной направляющий аппарат КНД
86. Трубопроводы отбираемого от компрессора воздуха
87. Обтекатель надфюзеляжного гаргрота
88. Насос подкачки топлива
89. Шарнир поворота и фиксатор правой основной стойки шасси
90. Крыльевой передний топливный бак
91. Не запопняемый топливом отсек
92. Узлы и разъемы крыльевого пилона
93. Трубопроводы топливной системы
94. Правый крыльевой основной топливный бак
95. Прорезь передней кромки
96. Передняя кромка с несимметричным профилем
97. Обтекатель законцовки крыла
98. Навигационный огонь правого борта
99. Внешний элевон
100. Гидроцилиндр элевона
101. Обтекатель гидроцилиндра элевона
102. Внутренний элевон
103. Правый задний крыльевой топливный бак
104. Дренажный трубопровод топливной системы
105. Маслобак двигателя (объем 17 л)
106. ТРД Pratt & Whitney J75-P-17
107. Передний узел крепления двигателя
108. Агрегаты двигателя
109. Воздухопровод системы охлаждения
110. Силовой шпангоут с узлами крепления крыльевого и килевого лонжеронов
111. Гидроцилиндр внутреннего элевона
112. Турбина двигателя
113. Терможожух
114. Задний узел крепления двигателя
115. Блоки настройки антенны
116. Приемники давления автоматов загрузки системы управления
117. Передняя кромка киля
118. Конструкция киля
119. Антенна опознавания воздушной цели
120. Обтекатель антенны на законцовке киля
121. Антенна УВЧ/TACAN
122. Хвостовой навигационный огонь
123. Руль направления
124. Сотовая конструкция руля направления
125. Воздушные тормоза
126. Пневмоцилиндры воздушных тормозов
127. Ниша тормозного парашюта
128. Гидроцилиндр руля направления
129. Триммер руля направления и блоки управления магрузкой
130. Воздушный тормоз в открытом положении
131. Регулируемое сопло двигателя
132. Регулируемая форсажная камера
133. Съемный хвостовой обтекатель (для демонтажа двигателя)
134. Цилиндры управления форсажной камерой
135. Трубопроводы форсажной камеры
136. Силовые шпангоуты
137. Коллектор впрыска топлива на форсаже
138. Направляющие для демонтажа двигателя

XR

РЛС

Во многих эскадрильях Командования ПВО машина пришла на смену F-86D/L, но, в отличие от большинства других всепогодных истребителей тех дней, F-102A имел только одного пилота, которому одновременно приходилось управлять и самолетом, и системой вооружения. Во время перехвата (при отсутствии команд с земли) пилот сидел, прижав лицо к резиновому тубусу на экране РЛС, пилотируя самолет правой (неподвижной) частью ручки управления, одновременно управляя лучом РЛС левой, подвижной частью. Ручка управления двигателем при этом фиксировалась в положении максимальной боевой тяги. Качая левую часть ручки, пилот сканировал пространство лучом РЛС, а при наклоне ее вперед фокусировал луч на цели, захват производился автоматически. После нажатия гашетки ракеты Falcon запускались в заданной последовательности при достижении необходимой дальности. Уход от возможного столкновения с целью осуществлялся автоматически.

Фонарь кабины

F-102A не был предназначен для воздушного боя, и обзор пилота был принесен в жертву чистоте аэродинамики машины. При перехвате в «полуавтоматическом» режиме пилот в основном смотрел на приборную доску, а обзор из кабины считался достаточным для взлета, посадки и полета в строю, нежели для визуального поиска цели. Клиновидный ветровой козырек имел обогревательные элементы на каждой из панелей и состоял из двух половин, открывавшихся вместе с фонарем как створки раковины.

***В июле 1954 года ВВС США заказали 20 двухместных TF-102A, а в начале 1955 года — ещ
28 машин. Приблизительно половина TF-102A могла нести ракеты AIM-26A Nuclear Falco
ятно, что они когда-либо использовались на самолетах Национальной гвардии. Другая
не имела вооружения или системы управления огнем и предназначалась только для пода
На снимке представлен TF-102A (обратите внимание на открытый отсек вооружения,
ции Национальной гвардии Флориды, позднее «пер***

Ракета MB-
шался «Ding-D
с ядерной боев
на с YF-102 в ма
галось вооружить
решения отказали
Genie вошла в арсена
F-101 и F-106. Dagg
AIM-26A Nuclear Falcon. Т
шая обозначение GAR-11, Н
здана для F-102A, но возв
вания самолеты получали то
(установка оборудования в ц
ния), которую прошли только 450 сам
ные) AIM-26A имела полуактивное радиолок
и такую же килотонную боеголовку, как более кр
шие доработки позволили использовать и Nuclear Falcon
центрального отсека. В качестве подстраховки ракет Falcon, D
ти до 24 HAP, пусковые установки которых были встроены в створки о
молеты, поставленные до декабря 1956 года, были способны использовать
затем ВВС сделали более мощные 70-мм ракеты стандартом для F-102A. Бригады
Air Materiel Area, авиабаза Келли, Техас) доработали 170 самолетов в полевых условиях.
Nuclear Falcon, не имели пусковых устройств HAP в створках центрального отсека, но за
неуправляемые ракеты на створках других отсеков. Позднее от использования HAP поли
повая боевая нагрузка состояла из трех ракет GAR-1D/AIM-4A с полуактивным радиолок
ем и трех GAR-2A/AIM-4C или AIM-4G с ИК-наведением, запускавшихся парами, п

F-102A-75-CO Delta Dagger

Пик использования F-102 Командованием ПВО США (ADC, Air Defense Command) пришелся на конец 1958 года, когда этими самолетами были вооружены 25 эскадрилий. Но уже в 1959 году на вооружение стал поступать новый перехватчик — F-106, и «Двойки» стали передавать в эскадрильи авиации Национальной гвардии. Одна такая часть, 178 FIS/119 FIG «Happy Hooligans» из Северной Дакоты, летала на F-102A с июня 1966 по ноябрь 1969 года, базируясь в муниципальном аэропорту Гектор Филд. До самолетов F/TF-102A в эскадрилье «Hooligans» летали на F-89J Scorpion, а на смену «Двойке» пришли F-101B/F Voodoo. В период использования F-102A в состав 178-й FIS также входили самолеты VC-131D Samaritan.

Eerie, Creepy Look at Cold War Culture

GODFREY
ULTIMATE
PUBLIC
SERVICE
ANNOUNCEMENT

CONELRAD

640 ▲ 1240

CONELRAD

SIGN UP NOW!

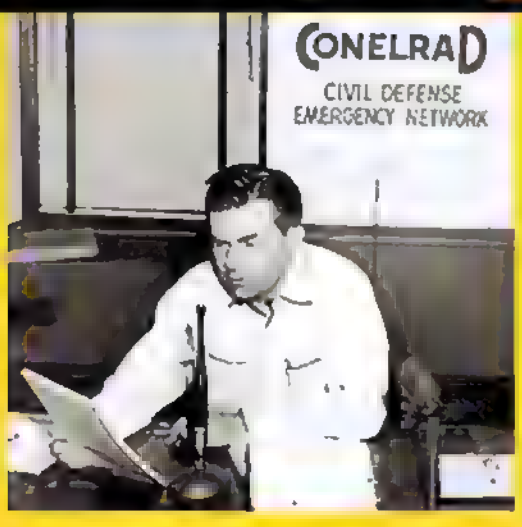
CONELRAD ALERT: Anti-Baez The Ballad of Janet Greene

Amazing Anti-Communist Folk Collection co-produced by CONELRAD!

Check out CONELRAD Adjacent for frequent blog posts & keep in touch on Facebook

And don't forget our Flickr image galleries

CONELRAD ALERT NEWS WIRE · ATOMIC HYGIENE · CONELRAD CAFE PODCAST



The Supreme Court's Cold War Relocation Plan!
[Thursday | 25 April 2013]

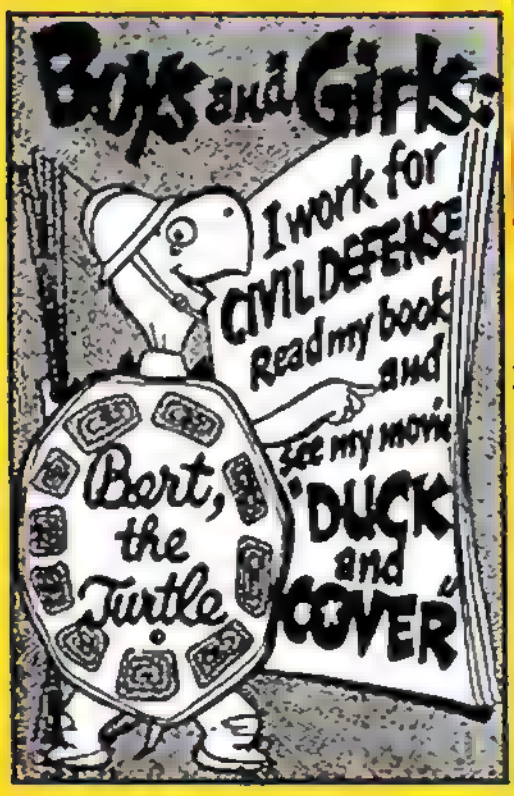
Atomic Singer-Songwriter Tribute
[Monday | 15 April 2013]

Miss Atomic Energy of 1948 is Turning 90!
[Wednesday | 08 August 2012]

Civil Defense Billboards!
[Wednesday | 25 April 2012]

Warning Red History of Maryland's 1956 C D Movie
[Monday | 16 January 2012]

DUCK AND COVER



COMPLETE PRODUCTION HISTORY

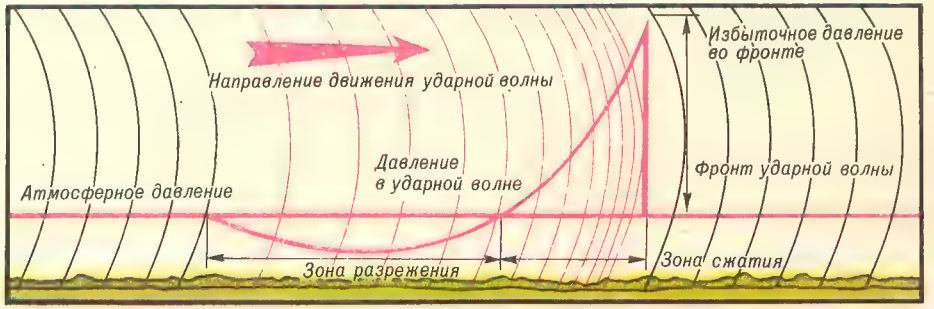
JANET GREENE:
THE 'ANTI-BAEZ'

YEARS-IN-THE-MAKING MUSICAL MANHATTAN PROJECT
ATOMIC PLATTERS
BE SURE & VISIT OUR
ATOMICPLATTERS.COM

УДАРНАЯ ВОЛНА

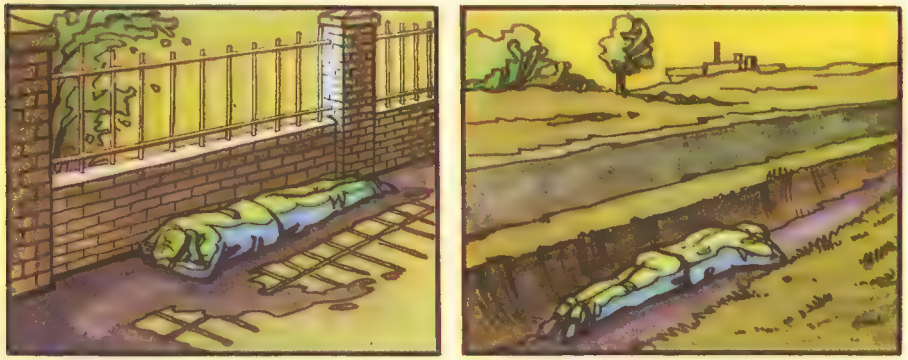
УДАРНАЯ ВОЛНА ЯВЛЯЕТСЯ ОСНОВНЫМ ПОРАЖАЮЩИМ ФАКТОРОМ ЯДЕРНОГО ВЗРЫВА. ОНА ВЫЗЫВАЕТ РАЗЛИЧНЫЕ ПО ХАРАКТЕРУ И ТЯЖЕСТИ ПОРАЖЕНИЯ ЛЮДЕЙ И ЖИВОТНЫХ, РАЗРУШАЕТ ЗДАНИЯ, СООРУЖЕНИЯ. С УДАЛЕНИЕМ ОТ ЦЕНТРА (ЭПИЦЕНТРА) ВЗРЫВА РАЗРУШИТЕЛЬНАЯ СИЛА УДАРНОЙ ВОЛНЫ ОСЛАБЕВАЕТ.

СТЕПЕНЬ ПОРАЖЕНИЯ И РАЗРУШЕНИЯ УДАРНОЙ ВОЛНОЙ ЗАВИСИТ ОТ МОЩНОСТИ БОЕПРИПАСА, ВИДА И РАССТОЯНИЯ ОТ ЦЕНТРА (ЭПИЦЕНТРА) ВЗРЫВА, КОНСТРУКЦИИ И РАСПОЛОЖЕНИЯ ЗДАНИЙ И СООРУЖЕНИЙ, ПОЛОЖЕНИЯ ЛЮДЕЙ, ТЕХНИКИ ВО ВРЕМЯ ВОЗДЕЙСТВИЯ УДАРНОЙ ВОЛНЫ, РЕЛЬЕФА МЕСТНОСТИ И ДРУГИХ ФАКТОРОВ

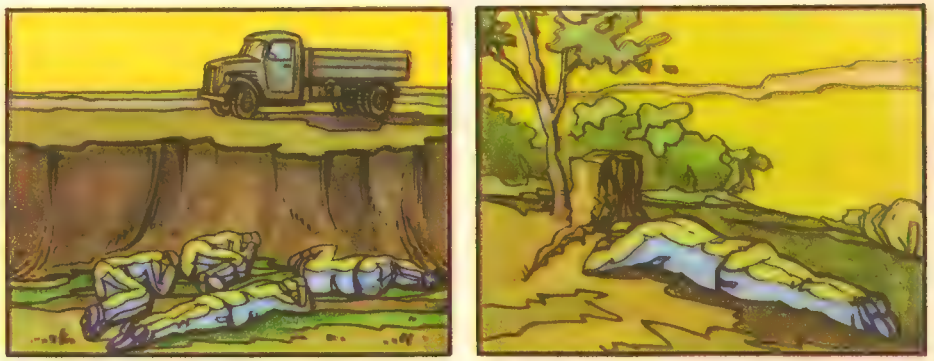


Ударная волна представляет собой область резкого сжатия воздуха, распространяющегося со сверхзвуковой скоростью во все стороны от центра взрыва

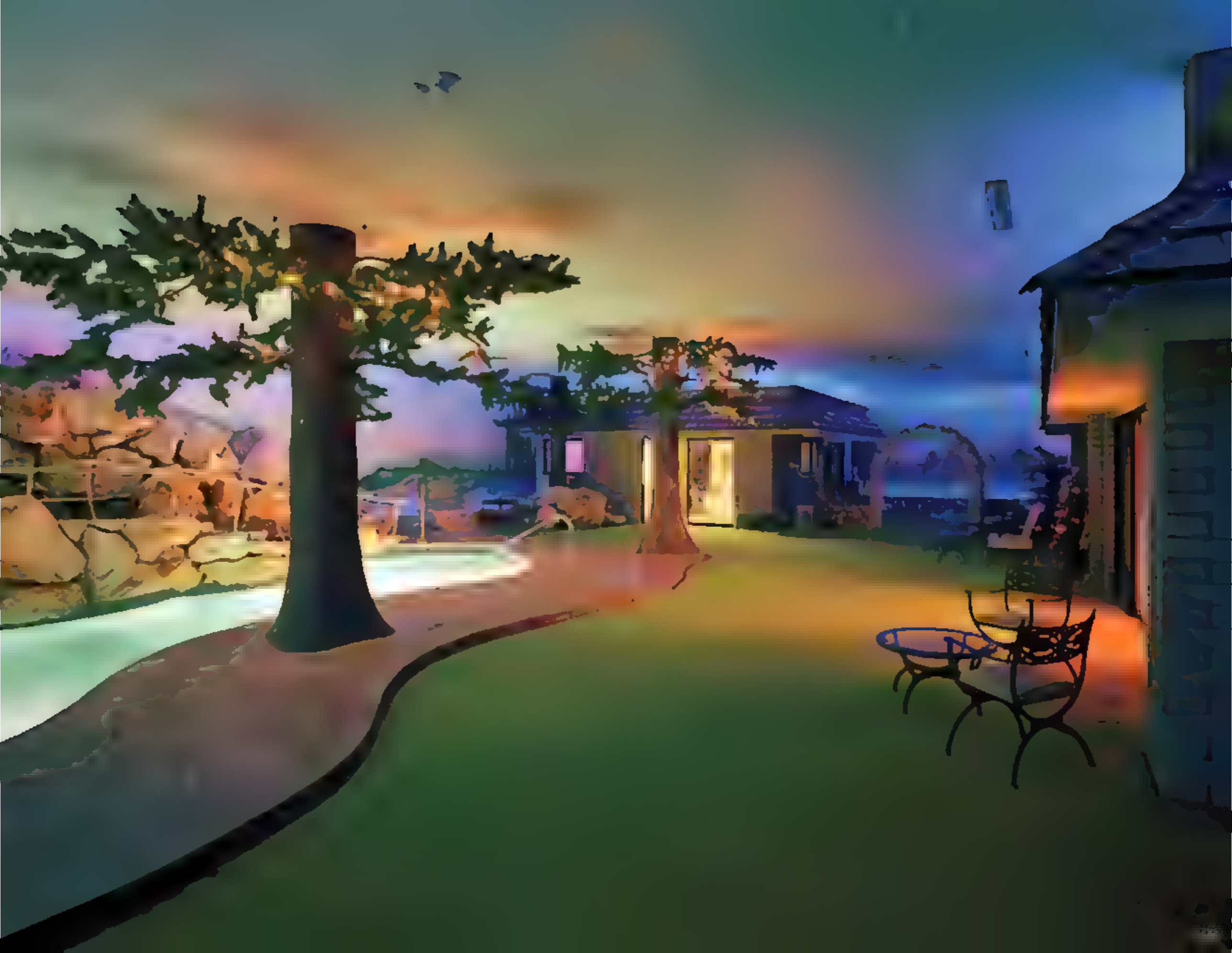
Очаг ядерного поражения в зависимости от давления во фронте ударной волны условно делится на зоны разрушений



Убежища защищают от воздействия ударной волны, а укрытия ослабляют ее воздействие



На значительном расстоянии от места взрыва защитой могут служить рельеф местности и местные предметы



XR

Underground World Home Corporation

How would you like sunshine every day... when you want it?

GREATER SECURITY—PEACE OF MIND—THE ULTIMATE IN TRUE PRIVACY!

Cut insurance, heating, maintenance costs to practically nothing. Reduce sinus, allergy and asthmatic annoyances — Dust but once a month.

Fantastic . . . An impossible dream . . . the perfect way of life for future generations? Not at all — it's here NOW! You can see these exciting new ideas — and many more — at the revolutionary Underground Home exhibit at the New York World's Fair, Avenue of Transportation (Block 50), between the Heliport and the Ford exhibit near the Western entrance.

Create your own private world . . . shut out noise, dangerous intruders, storms, pollen, air pollution . . . Control your climate electronically . . . "dial" Spring weather in midwinter, sunshine on a rainy day, high noon at midnight . . . grow luxuriant flowers under artificial sunlight in a garden 15 feet beneath the earth's surface. Use your land twice . . . build a swimming pool, playground area or woodland park right over your home.

Terrific . . . these advantages and innovations truly sound wonderful, but what IS an underground home? What does it look like and how "different" is it? The visitor is in for a surprise!!! After following a wide, spiral staircase down into the subterranean entrance, he will enter a luxurious, ultramodern ten room residence resembling an elegant above ground home.

The difference . . . the reason for all these marvelous improvements and benefits . . . is WHERE it is built — 15 feet down!!! Entirely new concepts and techniques in architecture, construction, interior design, lighting, ventilation and utility installations make the home **the most advanced** of all the futuristic World's Fair structures.

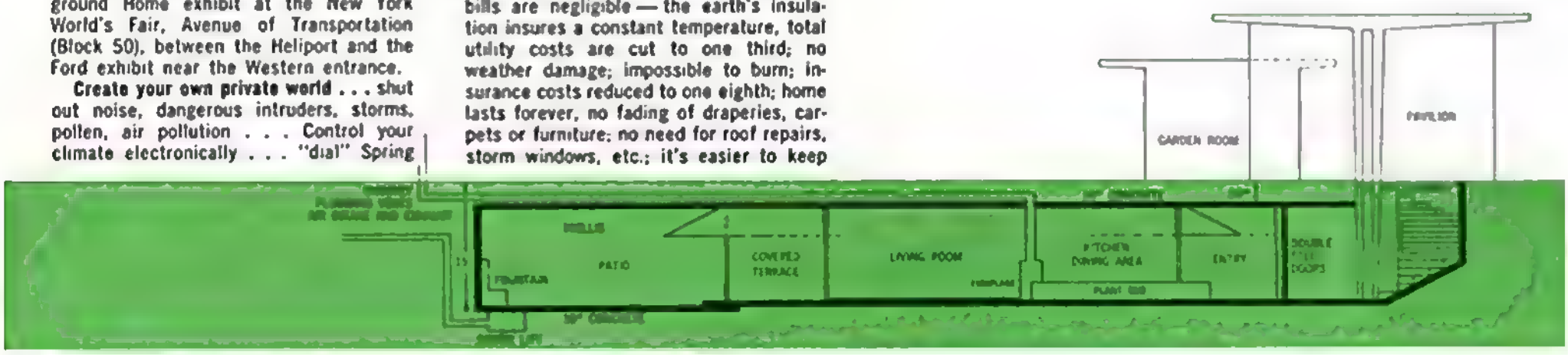
It is built, like a ship in a bottle, inside of an oblong shell of waterproof concrete 130 feet by 90 feet wide. The shell's concrete top, 36 inches below the surface, is covered by the earth's insulation. The Underground Home is thus protected from the ravages of nature, the physical and psychological assaults caused by our industrialized society and the population explosion.

By "dialing" the proper blends of electrical sunshine, twilight, moonlight or starlight, and mixing the correct formulas of heating or cooling, occupants can regulate their own climate, scenery, barometric pressure and even the season of the year.

From inside the Home, occupants may look out through sliding glass doors onto a "sun drenched", inviting marble terrace where flowers bloom, a fountain splashes and tropical fish swim in a pool. When ready for bed, raise the window, and a refreshing breeze from the shell stirs the draperies, inviting sleep.

UNDERGROUND LIVING DOES MAKE SENSE AND HERE'S WHY:

IT COSTS LESS — heating and cooling bills are negligible — the earth's insulation insures a constant temperature, total utility costs are cut to one third; no weather damage; impossible to burn; insurance costs reduced to one eighth; home lasts forever, no fading of draperies, carpets or furniture; no need for roof repairs, storm windows, etc.; it's easier to keep clean. In addition to all this — you have **DOUBLE USE OF YOUR LAND.**



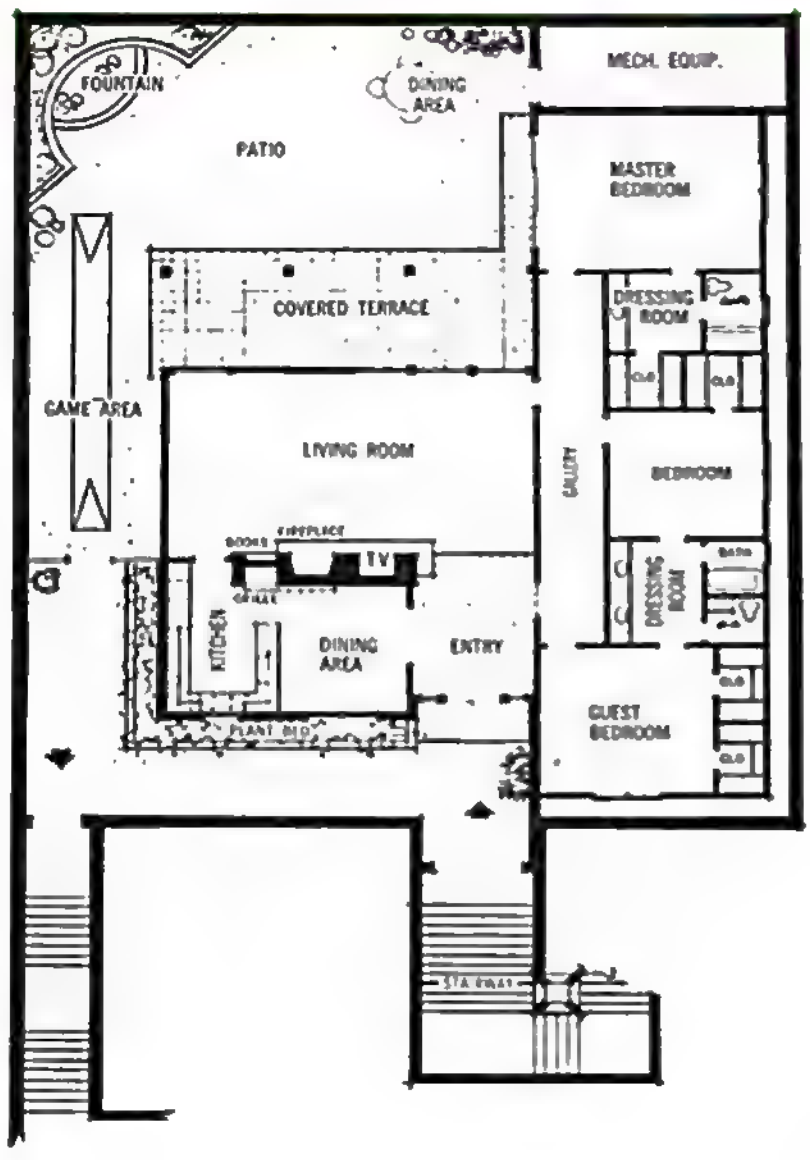
HEALTHIER, CLEANER, QUIETER LIVING— asthma, sinus, allergy and chronic cold sufferers receive almost instant relief in abundant, dry, stimulating filtered air. It can be pressurized to any altitude — much like a plane cabin. No dirt means less house work and more time for recreation. It's QUIET, easier on the nerves, perfect for relaxing and enjoying good music. But most of all, it offers the average man the proverbial island unto himself.

THE UTMOST IN SECURITY — lessens the likelihood of human intruders; protection from storms of all types; is impervious to nuclear fallout.

The underground concept is not limited only to residential construction. Indeed, the numerous advantages are just that much greater when applied to underground apartments, factories, motels, shopping centers and restaurants.

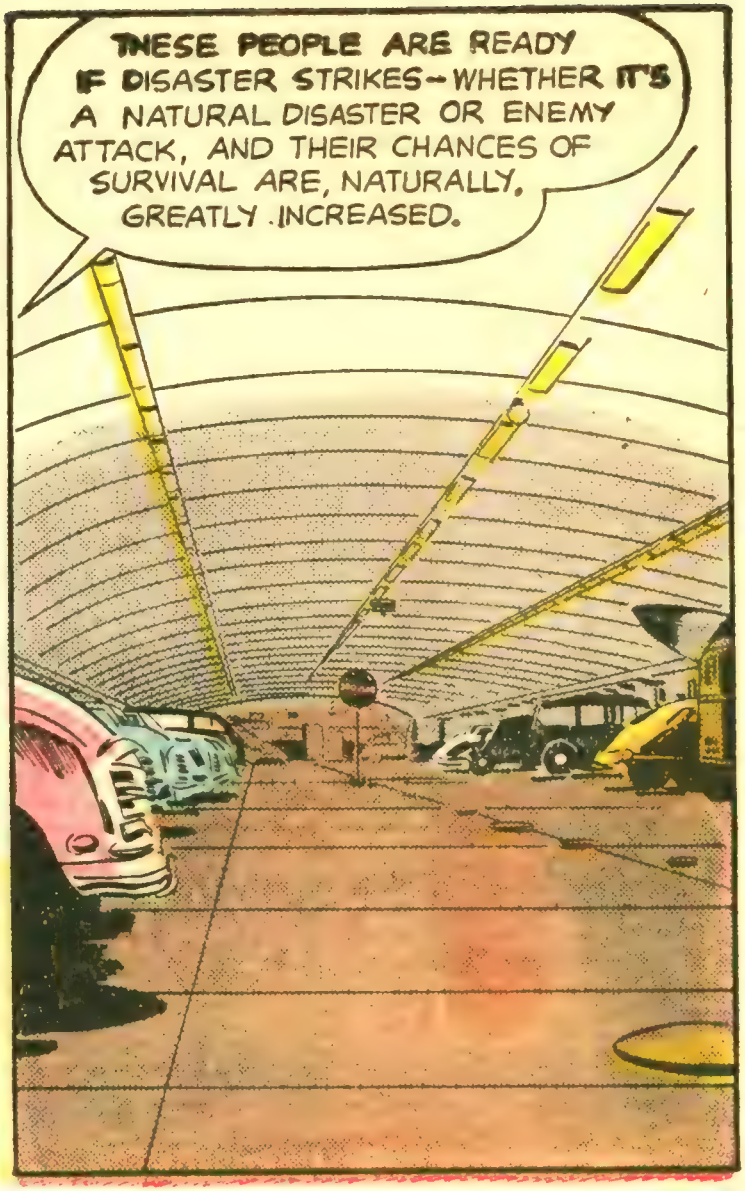
The World's Fair is the fourth such home to be built by Jay Swayze, Plainview, Texas, business executive and home builder. He, his wife and two teen-age daughters have, for the past two years, lived in their underground home which has been visited by over 20,000 people.

Special group tours may be arranged. Admission is only one dollar for adults and fifty cents for children. A complete, colorfully illustrated story of the Underground Home and Underground construction is contained in a booklet available at the exhibit for $1.00 or by mailing a check or money order to Mr. Jay Swayze, President, Underground World Home Corporation, P.O. Box 1827, Flushing 52, New York. A specially trained staff at the exhibit will be prepared to explain how you too, can have an Underground Home.



XR

SPEAKING OF PREPAREDNESS, I SAW MANY TYPES OF UNDER-GROUND STRUCTURES LIKE THIS IN SWEDEN.


THESE PEOPLE ARE READY IF DISASTER STRIKES—WHETHER IT'S A NATURAL DISASTER OR ENEMY ATTACK, AND THEIR CHANCES OF SURVIVAL ARE, NATURALLY, GREATLY INCREASED.

even near the point of explosion. Fire-fighters and rescue teams can move promptly toward the center of destruction with little danger of facing harmful radiation.

Don't Worry About High-level Radioactive Clouds.

And regardless of all you may have heard or read concerning the dangers of radioactive clouds, after the first minute and a half there is actually little or nothing to fear from those produced by high-level bursts. While most of the radioactive materials swept up into the sky eventually fall back to earth, they are so widely and so thinly spread that they are very unlikely to offer any real dangers to humans.

It Would Take Many Thousands of A-bombs to Produce Dangerous Ground Contamination.

Thousands of bombs would have to be set off in the air before serious ground contamination would be found over really large areas. There was no ground-level pollution of any importance following either of the two Japanese atomic bombings.

None of the Japanese at Hiroshima or Nagasaki Were Harmed by Lingering Radioactivity.

It was said earlier that 15 percent of the Japanese A-bomb deaths or injuries were caused by radioactivity. But not one of them was caused by the lingering kind. Explosive radioactivity caused them all.

WHAT ABOUT GROUND AND WATER BURSTS?

Surface Bursts Usually Leave a Limited Area Radioactive.

Bursts on or near the ground usually will leave a limited area of rather heavy and often dangerous pollution near the explosion point. In such cases, the possibility of harm from radioactivity falling out of the clouds is greater than in high-

level explosions. But even so, a person could escape contamination by simply taking refuge inside a house or even by getting inside a car and rolling up the windows. And even if some of the wastes fell on him, he would lessen his chances of injury if he promptly shed his clothes and took a bath or shower.

Underwater A-bombs Produce Serious Lingering Radiation.

In underwater explosions, large portions of the bomb's radioactive wastes will be "trapped" by the water and then spread over the immediate area. Under these conditions, serious ground pollution is to be expected.

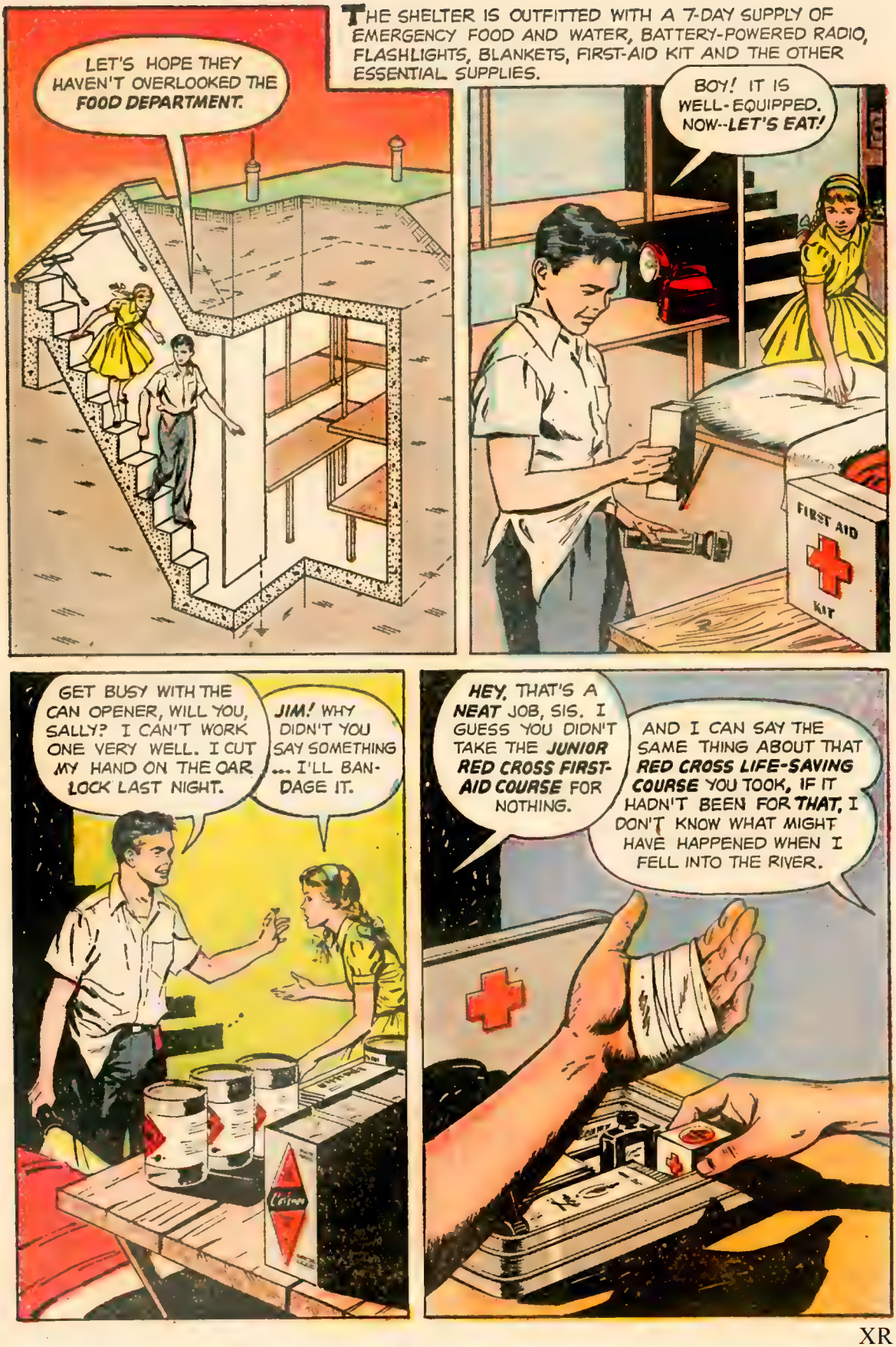
After a water or underground burst a cloud of very radioactive mist or dust might form and spread, particularly downwind, injuring people who weren't well sheltered.

Stay Under Cover for at Least an Hour After Ground or Underwater Bursts.

If the explosion has been underground, at ground level, or in the water, stay in your shelter. If caught in the open, get indoors right away. Then stay indoors for at least an hour or until you get instructions. It may be necessary to stay inside for three or four hours. The reason for this is that most lingering radioactivity loses its power very fast. So staying undercover for a while will greatly reduce the danger.

Avoid Getting Wet After Underwater Bursts.

Any rain or mist that comes right after an atomic explosion should be considered dangerous, even though it may not always be radioactive. Keep from getting wet if you possibly can.


THE SHELTER IS OUTFITTED WITH A 7-DAY SUPPLY OF EMERGENCY FOOD AND WATER, BATTERY-POWERED RADIO, FLASHLIGHTS, BLANKETS, FIRST-AID KIT AND THE OTHER ESSENTIAL SUPPLIES.
LET'S HOPE THEY HAVEN'T OVERLOOKED THE FOOD DEPARTMENT.
BOY! IT IS WELL-EQUIPPED. NOW--LET'S EAT!
FIRST AID KIT
GET BUSY WITH THE CAN OPENER, WILL YOU, SALLY? I CAN'T WORK ONE VERY WELL. I CUT MY HAND ON THE OAR LOCK LAST NIGHT.
JIM! WHY DIDN'T YOU SAY SOMETHING ... I'LL BANDAGE IT.
HEY, THAT'S A NEAT JOB, SIS. I GUESS YOU DIDN'T TAKE THE JUNIOR RED CROSS FIRST-AID COURSE FOR NOTHING.
AND I CAN SAY THE SAME THING ABOUT THAT RED CROSS LIFE-SAVING COURSE YOU TOOK, IF IT HADN'T BEEN FOR THAT, I DON'T KNOW WHAT MIGHT HAVE HAPPENED WHEN I FELL INTO THE RIVER.

XR

Tupolev Tu-4 "Bull"

Crew: 11
Length: 30.179 m (99 ft 0 in)
Wingspan: 43.047 m (141 ft 3 in)
Height: 8.46 m (27 ft 9 in)
Wing area: 161.7 m2 (1,741 sq ft)
Aspect ratio: 11.5
Empty weight: 36,850 kg (81,240 lb)
Gross weight: 47,850 kg (105,491 lb)
Max takeoff weight: 55,600 kg (122,577 lb) – 63,600 kg (140,214 lb)
Powerplant: 4 × Shvetsov ASh-73TK 18-cyl. air-cooled radial piston engines, 1,790 kW (2,400 hp) each
Propellers: 4-bladed V3-A3 or V3B-A5, 5.06 m (16 ft 7 in) diameter

Performance

Maximum speed: 558 km/h (347 mph; 301 kn) at 10,250 m (33,629 ft)
Range: 5,400 km (3,355 mi; 2,916 nmi) at 3,000 m (9,843 ft) with 63,600 kg (140,214 lb) take-off weight including 3,000 kg (6,614 lb) of bombs and 10% fuel reserves
Service ceiling: 11,200 m (36,745 ft)
Rate of climb: 4.6 m/s (910 ft/min) at 1,000 m (3,281 ft)
Time to altitude: 5,000 m (16,404 ft) in 18.2 minutes
Wing loading: 400 kg/m² (82 lb/sq ft)
Power/mass: 0.11 kW/kg

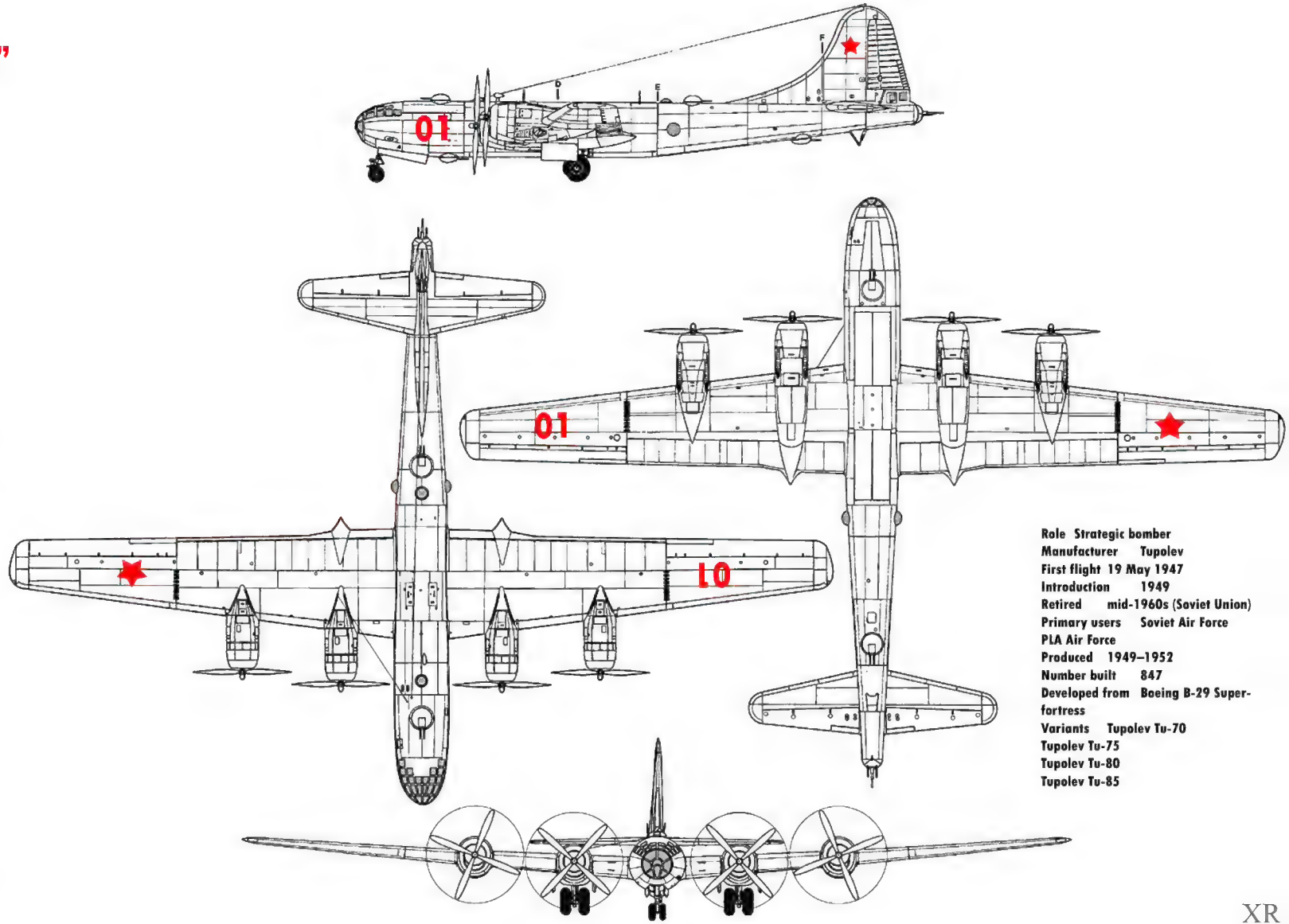
Armament

Guns:
10 × 23 mm Nudelman-Suranov NS-23 aircraft cannon,
two cannon in each of the four turrets and two cannon in the tail barbette
Missiles:
2 × KS-1 Komet standoff missiles (Tu-4K only;

Bombs:
6 × 1,000 kg (2,205 lb) bombs

or

1 x RDS-1, RDS-3 or RDS-5 ***nuclear fission bomb***



Role Strategic bomber
Manufacturer Tupolev
First flight 19 May 1947
Introduction 1949
Retired mid-1960s (Soviet Union)
Primary users Soviet Air Force
PLA Air Force
Produced 1949–1952
Number built 847
Developed from Boeing B-29 Superfortress
Variants Tupolev Tu-70
Tupolev Tu-75
Tupolev Tu-80
Tupolev Tu-85

XR

model construction: Piotr Dmitruk

RADUGA KH-20
NATO - AS-3 KANGAROO

WINGSPAN: 9.15 M
LENGTH: 14.95 M
DIAMETER: 1.81 M
HEIGHT: 3.02 M
EMPTY WEIGHT: 5,878 KG
LAUNCH WEIGHT: 12,000 KG
ENGINE: 1X LYULKA AL-7FK TURBOJET
CRUISE SPEED: MACH 2.0
CRUISE CEILING: TARGET-DEPENDENT, UP TO 20,000 M
RANGE: 380–600 KM
GUIDANCE: INERTIAL WITH REMOTE CORRECTION OVER RADIO
WARHEAD: 2,300 KG THERMONUCLEAR, 0.8-3.0 MT

Role- Strategic bomber
Manufacturer- Tupolev
First flight 27 April 1952
Introduction 1954
Retired 1993 (in former Soviet Union nations)
Primary users Soviet Air Force
Egyptian Air Force
Indonesian Air Force
Iraqi Air Force
Number built 1,509[1]

General characteristics

Crew: 6–7
Length: 34.80 m (114 ft 2 in)
Wingspan: 33.00 m (108 ft 3 in)
Height: 10.36 m (34 ft 0 in)
Wing area: 165 m2 (1,780 sq ft)
Empty weight: 37,200 kg (82,012 lb)
Gross weight: 76,000 kg (167,551 lb)
Max takeoff weight: 79,000 kg (174,165 lb)
Powerplant: 2 × Mikulin AM-3 M-500 turbo jets, 93.2 kN (21,000 lbf) thrust each

Performance

Maximum speed: 1,050 km/h (652 mph; 567 kn)
Range: 7,200 km (4,474 mi; 3,888 nmi)
Service ceiling: 12,800 m (41,995 ft)
Wing loading: 460 kg/m² (94 lb/sq ft)
Thrust/weight: 0.24

The wing of the 'Badger' is too thin to house the main wheels, so they retract into streamlined fairings built into the wing's trailing edge.

Carriage of the massive 'Kingfish' missile was usually restricted to one wing pylon, although two could be carried on short-range missions.

Tu-16K 'Badger-C'

Despite its age, the Tu-16 still has a useful part to play in today's combat scenarios, having outlasted all its contemporaries. Missile carriers such as this one were targeted against NATO ships, and could have launched a sizeable barrage of nuclear missiles at Western fleets if all-out war had been declared.

Unlike most Western aircraft of the same era, the Tu-16 carries a heavy defensive armament of six 23-mm (0.91-in) cannon in three turrets. The dorsal turret is aimed from a small blister behind the cockpit.

The ventral guns are aimed through the large observation blisters on each side of the rear fuselage.

The 'Badger' normally operates with a six-man crew with pilot, co-pilot, navigator and flight engineer in the front crew compartment.

The massive radome houses the radar code-named 'Puff Ball' by NATO. With a range in excess of 150 km (93 miles), it is used for ground mapping as well as target search and track.

Known to the Russians as K-26, the 'Kingfish' weighs about 4500 kg (9,921 lb) at launch. It has a range estimated at 200 to 500 km (124 to 311 miles), depending on its launch height.

Tu-16s have a unique refuelling method; the tanker trails a hose from its wingtip, and this is then hooked by the receiver's wing tip.

The rear gunners were housed in their own pressurized compartment, with no connection to the flight deck.

XR

Vickers ‘Valiant’ Bmk-1

Топливная система
Мягкие топливные баки в клине и фюзеляже вмещали 30 376 л горючего, или обычного керосина, или широкофракционного топлива AVTAG. Для использования последнего требовалась система продувки сжатым азотом. Кроме того, самолет мог нести два больших бака под крылом, каждый из которых вмещал 7478 л топлива. Эти баки практически всегда устанавливались на B(K) Mk 1 и B(PR) K Mk 1, когда они использовались в качестве заправщиков. При переконочных полетах Valiant мог также нести еще два бака емкостью по 7 442 л в бомбоотсеке. Однако при использовании в качестве заправщика Va iant нес один 2841-литровый бак в передней части бомбоотсека, в то время как в задней части размещался заправочный агрегат HDU Mk 1b фирмы «Flight Refuelling Ltd». При этом сохранялись стандартные створки бомбоотсека, открывавшиеся при использовании HDU. Заправочный агрегат имел шесть сигнальных огней — «светофоров» для выдачи указаний пилоту заправляемого самолета, что и сам valiant мог дозаправляться в полете. Шланг топливоприемника устанавливался на кронштейне в носовой части фюзеляжа, чтобы не нарушать герметичную конструкцию кабины. Топливная магистраль была пущена по левому борту снаружи фюзеляжа.

Заправляемые самолеты
Чтобы использовать вновь полученные возможности дозаправки в воздухе, RAF снабдили часть своих самолетов соответствующим оборудованием, зачастую выглядевшим не слишком эстетично. Например, истребители Javelin FAW Mk 9, на руку уже показан самолет из 25-й эскадрильи, оставался не пропорционально громоздкой заправочной «тангой» и «копьем». Тем не менее возможности самолетов значительно возросли — во время учений эскадрилья Javelin была быстро переобучена в Singapur.

Окраска и обозначения
Белая «противоатомная» схема окраски была введена в 1957 году. Она предназначалась для частичного отражения теплового излучения ядерного взрыва. Поскольку любые темные поверхности поглощают тепло, цвет черных бортовых номеров, а также знаков национальной принадлежности как бы «приглушили». Радиопрозрачные обтекатели антенн в носовой части и на вершине киля оставили черными, как и антибликовую панель перед лобовыми стеклами кабины. Самолеты-заправщики 214-й эскадрильи несли на киле эмблему, являвшуюся комбинацией эмблемы фирмы «Flight Refuelling Ltd» с гербом подразделения.

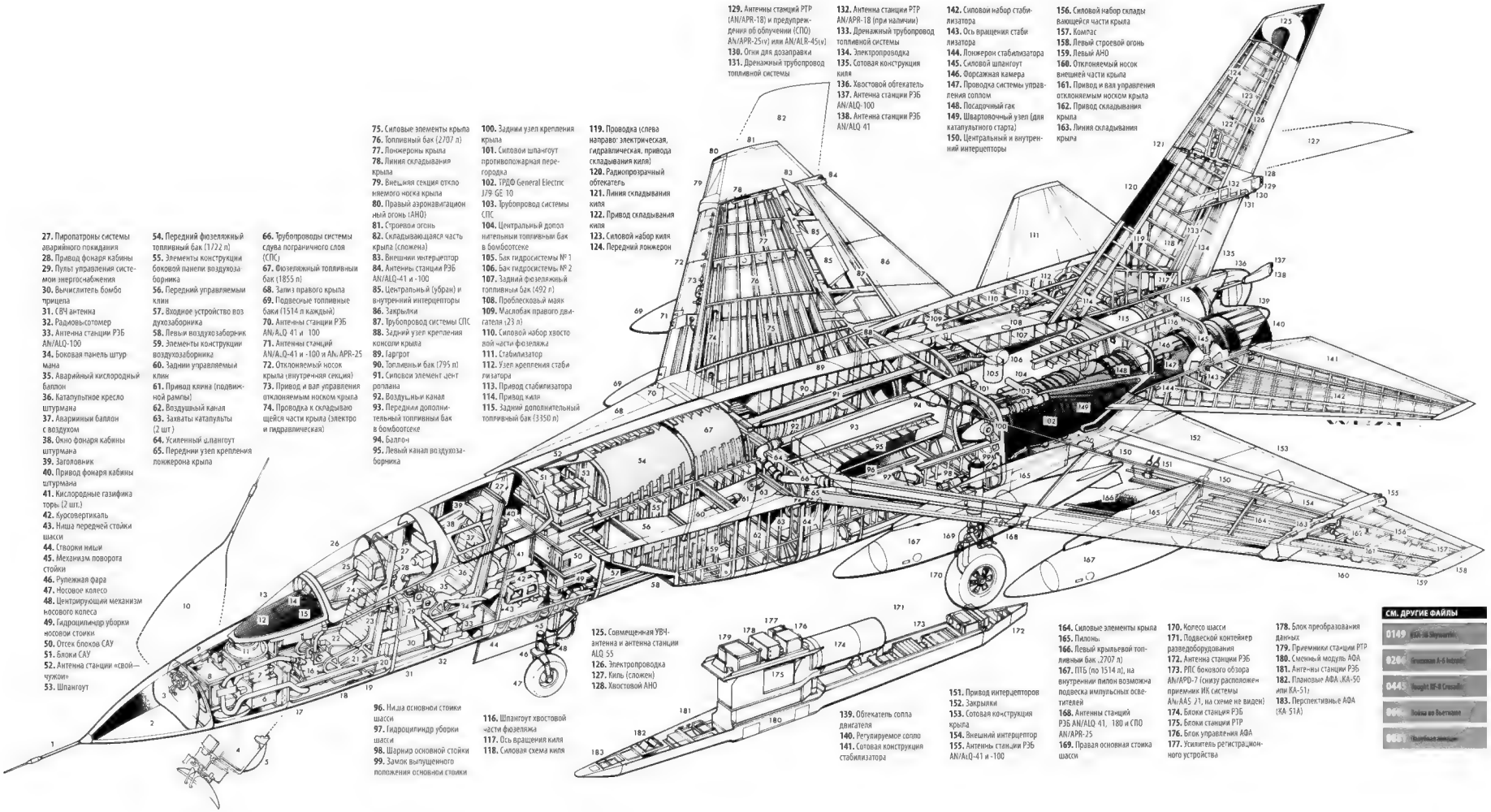
Шасси
Носовая стойка шасси Valiant со сдвоенными колесами имела вполне обычную конструкцию, а вот основные стойки выглядели довольно необычно. Они отличались тандемным расположением колес, каждое из которых крепилось к собственному амортизатору. Стойки убирались по направлению к законцовкам крыла и размещались в нишах на его нижней поверхности.

Силовая установка
На всех Valiant были установлены различные модификации ТРД с осевым компрессором Rolls-Royce Avon. Первый прототип был оснащен RA 3 тягой 28,92 kN, а на второй прототип и самолеты раннего выпуска устанавливались ТРД RA 7 тягой 33,37 kN, имевшие большие расход воздуха, поэтому пришлось увеличить площадь воздухозаборников. С 1957 года последние B(K) Mk 1, сошедшие со сборочной линии, оснащались двигателями RA.28 Avon 205, имевшими систему впрыска водометаноловой смеси на взлетных режимах. Они развивали тягу по 44,5 kN.

РЛС
Установленная на Valiant система NBS Mk 1 (navigation/bombing system), сердцем которой была РЛС H-S, обеспечивала ему возможность осуществлять бомбометание в отсутствие визуального контакта с целью. Система получала данные из различных источников, главным из которых была РЛС, и автоматически вычисляла положение самолета с учетом скорости и сноса. Соответствующие данные отображались на индикаторе в кабине экипажа или на панели прицела T.2 станции визуального наведения. Антенна РЛС была закрыта массивным диэлектрическим обтекателем, выполненным из материалов Neoprene, Hycar и стекловолокна со смолой Nuron в качестве связующего.

XR

NORTH AMERICAN A-5 VIGILANTE



27. Пиропатроны системы аварийного покидания
28. Привод фонаря кабины
29. Пульт управления системой энергоснабжения
30. Вычислитель бомбоприцела
31. СВЧ антенна
32. Радиовысотомер
33. Антенна станции РЭБ AN/ALQ-100
34. Боковая панель штурмана
35. Аварийный кислородный баллон
36. Катапультное кресло штурмана
37. Аварийный баллон с воздухом
38. Окно фонаря кабины штурмана
39. Заголовник
40. Привод фонаря кабины штурмана
41. Кислородные газификаторы (2 шт.)
42. Курсовертикаль
43. Ниша передней стойки шасси
44. Створки ниши
45. Механизм поворота стойки
46. Рулежная фара
47. Носовое колесо
48. Центрирующий механизм носового колеса
49. Гидроцилиндр уборки носовой стойки
50. Отсек блоков САУ
51. Блоки САУ
52. Антенна станции «свой—чужой»
53. Шпангоут

54. Передний фюзеляжный топливный бак (1722 л)
55. Элементы конструкции боковой панели воздухозаборника
56. Передний управляемый клин
57. Входное устройство воздухозаборника
58. Левый воздухозаборник
59. Элементы конструкции воздухозаборника
60. Задний управляемый клин
61. Привод клина (подвижной рампы)
62. Воздушный канал
63. Захваты катапульты (2 шт.)
64. Усиленный шпангоут
65. Передний узел крепления лонжерона крыла

66. Трубопроводы системы слува пограничного слоя (СПС)
67. Фюзеляжный топливный бак (1855 л)
68. Запиз правого крыла
69. Подвесные топливные баки (1514 л каждый)
70. Антенны станции РЭБ AN/ALQ 41 и 100
71. Антенны станций AN/ALQ-41 и -100 и AN/APR-25
72. Отклоняемый носок крыла (внутренняя секция)
73. Привод и вал управления отклоняемым носком крыла
74. Проводка к складывающейся части крыла (электро и гидравлическая)

75. Силовые элементы крыла
76. Топливный бак (2707 л)
77. Лонжероны крыла
78. Линия складывания крыла
79. Внешняя секция отклоняемого носка крыла
80. Правый аэронавигационный огонь (АНО)
81. Строевой огонь
82. Складывающаяся часть крыла (сложена)
83. Внешний интерцептор
84. Антенны станции РЭБ AN/ALQ-41 и -100
85. Центральный (убран) и внутренний интерцепторы
86. Закрылки
87. Трубопровод системы СПС
88. Задний узел крепления консоли крыла
89. Гаргрот
90. Топливный бак (795 л)
91. Силовой элемент центроплана
92. Воздушный канал
93. Передний дополнительный топливный бак в бомбоотсеке
94. Балочн
95. Левый канал воздухозаборника

96. Ниша основной стойки шасси
97. Гидроцилиндр уборки шасси
98. Шарнир основной стойки
99. Замок выпущенного положения основной стойки

100. Задний узел крепления крыла
101. Силовой шпангоут противопожарная перегородка
102. ТРДФ General Electric J79-GE-10
103. Трубопровод системы СПС
104. Центральный дополнительный топливный бак в бомбоотсеке
105. Бак гидросистемы № 1
106. Бак гидросистемы № 2
107. Задний фюзеляжный топливный бак (492 л)
108. Проблесковый маяк
109. Маслобак правого двигателя (23 л)
110. Силовой набор хвостовой части фюзеляжа
111. Стабилизатор
112. Узел крепления стабилизатора
113. Привод стабилизатора
114. Привод киля
115. Задний дополнительный топливный бак (3350 л)

116. Шпангоут хвостовой части фюзеляжа
117. Ось вращения киля
118. Силовая схема киля

119. Проводка (слева направо: электрическая, гидравлическая, привода складывания киля)
120. Радиопрозрачный обтекатель
121. Линия складывания киля
122. Привод складывания киля
123. Силовой набор киля
124. Передний лонжерон

125. Совмещенная УВЧ-антенна и антенна станции ALQ-55
126. Электропроводка
127. Киль (сложен)
128. Хвостовой АНО

129. Антенны станций РТР (AN/APR-18) и предупреждения об облучении (СПО) AN/APR-25(v) или AN/ALR-45(v)
130. Огни для дозаправки
131. Дренажный трубопровод топливной системы

132. Антенна станции РТР AN/APR-18 (при наличии)
133. Дренажный трубопровод топливной системы
134. Электропроводка
135. Сотовая конструкция киля
136. Хвостовой обтекатель
137. Антенна станции РЭБ AN/ALQ-100
138. Антенна станции РЭБ AN/ALQ 41

139. Обтекатель сопла двигателя
140. Регулируемое сопло
141. Сотовая конструкция стабилизатора

142. Силовой набор стабилизатора
143. Ось вращения стабилизатора
144. Лонжерон стабилизатора
145. Силовой шлангоут
146. Форсажная камера
147. Проводка системы управления соплом
148. Посадочный гак
149. Швартовочный узел (для катапультного старта)
150. Центральный и внутренний интерцепторы

151. Привод интерцепторов
152. Закрылки
153. Сотовая конструкция крыла
154. Внешний интерцептор
155. Антенны станции РЭБ AN/ALQ-41 и -100

156. Силовой набор складывающейся части крыла
157. Компас
158. Левый строевой огонь
159. Левый АНО
160. Отклоняемый носок внешней части крыла
161. Привод и вал управления отклоняемым носком крыла
162. Привод складывания крыла
163. Линия складывания крыла

164. Силовые элементы крыла
165. Пилоны
166. Левый крыльевой топливный бак (2707 л)
167. ПТБ (по 1514 л), на внутренних пилонах возможна подвеска импульсных осветителей
168. Антенны станций РЭБ AN/ALQ-41, 180 и СПО AN/APR-25
169. Правая основная стойка шасси

170. Колесо шасси
171. Подвесной контейнер разведоборудования
172. Антенна станции РЭБ
173. РЛС бокового обзора AN/ARD-7 (снизу расположен приемник ИК системы AN/AAS-21, на схеме не виден)
174. Блоки станции РЭБ
175. Блоки станции РТР
176. Блок управления АФА
177. Усилитель регистрационного устройства

178. Блок преобразования данных
179. Приемники станции РТР
180. Сменный модуль АФА
181. Антенны станции РЭБ
182. Плановые АФА (КА-50 или КА-51)
183. Перспективные АФА (КА-51А)

СМ. ДРУГИЕ ФАЙЛЫ
0149 [illegible]
0204 Grumman A-6 Intruder
0443 Vought RF-8 Crusader
0496 [illegible] во Вьетнаме
0651 [illegible]

NORTH AMERICAN A-5 “VIGILANTE”

CREW: 2
LENGTH: 76 FT 6 IN (23.32 M)
WINGSPAN: 53 FT 0 IN (16.16 M)
HEIGHT: 19 FT 4¾ IN (5.91 M)
WING AREA: 700 FT² (65.1 M²)
EMPTY WEIGHT: 32,714 LB (14,870 KG)
LOADED WEIGHT: 47,530 LB (21,605 KG)
MAX. TAKEOFF WEIGHT: 62,953 LB (28,615 KG)
POWERPLANT: 2 × GENERAL ELECTRIC J79-GE-8 AFTERBURNING TURBOJETS

гельное оборудование
внушительным набором разведоборудования, позволявшим осуществлять разведку на различных скоростях и высотах днем и ночью в простых и условиях. Все специальное оборудование самолета размещалось в подфюзеляжном контейнере и включало аэрофотоаппараты ADA, для планового и панорамной съемки РЛС бокового обзора систему разведки в ИК диапазоне а также рассеивающую станцию РЛС которая по сути являлась электронической разведки. РТР. В зависимости от поставленных задач состав оборудования комплекса разведывательными систем- существлял штурман-оператор. Изначально специальное оборудование было оптимизировано для ведения разведки со средних высот но получен нем опыт вынудил в целях повышения выживаемости машины при сильном противодействии ПВО снизить высоту разведки до малых и продолжа- ответственно изменялся и состав оборудования. Внутри контейнера средства разведки располагались на восьми позициях
спективные AFA-KA-51A или KA-51B с фокусным расстоянием объектива 152 мм на неподвижной установке угол наклона задавался на земле и со ли 10°
KA-56A: фокусное расстояние 44 мм) и KA-62A 76 мм, или KA-51A 152 мм) на качающейся установке
многодиапазонная станция RTP
е, в зависимости от полетного задания, могли устанавливаться три различных комплекта оборудования в пяти конфигурациях. Комплект 4-1 два ративной съемки комплект 4-1A аналогично 4-1 плюс панорамный AFA фокусное расстояние 76 мм) комплект 4-2 панорамные AFA KA-58A 7A. 76 мм; комплект 4-4 два AFA с фокусным расстоянием объектива 152 мм, плюс возможность установки AFA фокусным расстоянием 44 мм. один или два AFA с фокусным расстоянием объектива 300 мм.
тивное радиоэлектронное оборудование
истема разведки AN/AAS-2
бокового обзора AN/APD-7

Система ночного фотографирования
Для обеспечения ночного фотографирования на внутренних крыле- вых углах подвески могли устанавливаться специальные осветители. Они пред ставляли собой обтекаемые контейнеры с тремя импульсными источниками света и ге нератором с приводом от воздушной турбины. Эффективная в мирное время система оказалась непригодной для использования в боевой обстановке крылье вспышки осветителей демаскировали са молет-разведчик и после нескольких боевых вылетов от ее использования отказались. Для фотографи- рования в ИК диапазоне была разработана аналогичная система также не нашедшая широкого примене ния. В основном при ведении разведки в ночное время использовали РЛС бокового обзора

Штурман-оператор
Штурман-оператор располагался в достаточно узкой задней кабине и в отличие от F-4 Phantom и большинства других машин с тандем- ным расположением экипажа обзор вперед не имел. Вместо кабину проникал через два небольших окна. На приборной доске располо гались индикатор телевизионной прицельной системы и навигационно- приборы, а в ее верхней части были установлены уже не четы рехканальный A-5A девять приборов. Также имелся выход штурмана. Помимо решения навигационных задач штурман оператор отвечал за использование специального аппаратуры. Пилот мог вдруг вызвать только АБА на первой позиции, направленные вперед вниз. От сутствие обзора вперед сделало невозможным управление самолетом из задней кабины при посадке на палубу и от органов управле ния в ней решили отказаться. Единственное что мог сделать штурман принудительно катапультировать летчика в случае ранения по среднего

Носовой радиопрозрачный обтекатель
Носовой обтекатель RA-5C как и на A-5A, для обеспечения досту па к РЛС откидывался вверх. РЛС была интегрирована с бомбоприцелом AN/ASB-12, которая являлась частью инерциальной навигационной системы. Бомбоприцел использовался для наведения специальной аппаратуры, поэтому теоретически сохранялась воз можность использовать машину в качестве ударных непосредственно за радиопрозрачным обтекателем располагался обтекатель телевизионной прицельной системы компании Eastman Kodak. Изображение передавалось на индикатор на лобовом стекле летчика и на экран в кабине штурмана-оператора

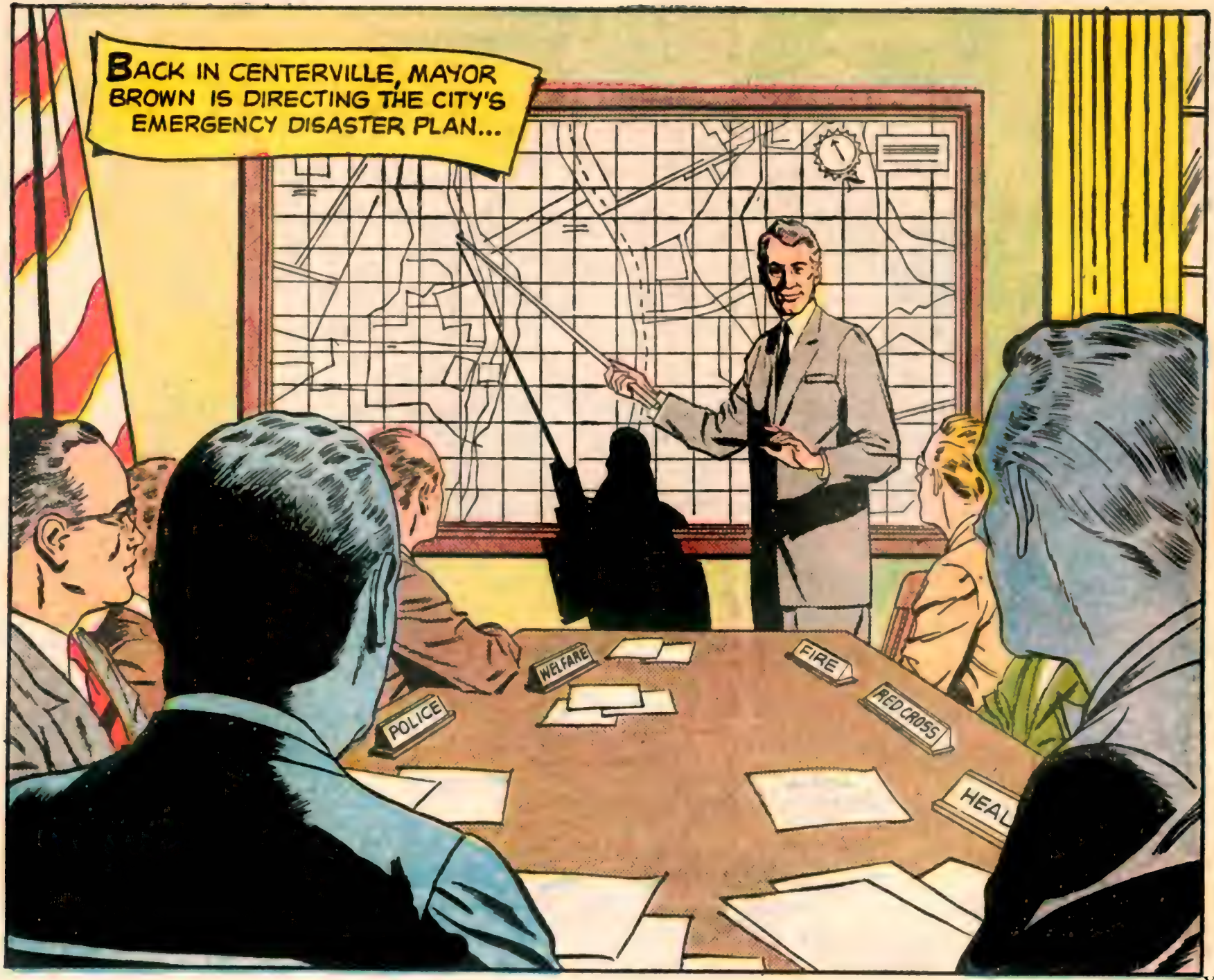
Vigilante на палубе авианосца «Рэнджер». Корабль уходит из Сан-Франциско на Гавайи, а затем — в Южно-Китайское море. После Тонкинского инцидента «Рэнджер» вошел в состав группировки ВМС США у берегов Вьетнама. Vigilante из RVAH-5, базирующейся на борту авианосца, стали первыми RA-5, прибывшими в зону конфликта. Экипажи в основном обеспечивала действия A-6 Intruder. На заднем плане — мост «Золотые ворота».

Центр обработки развединформации (ЦОРИ)
Для оперативного обеспечения командования разведывательной информацией на кораблях базирования эскадрилий воору женных RA-5 были развернуты специальные пункты центры ЦОРИ укомплектованные специалистами в соответствующих области. РТР фоторазведка оптико-электронной разведки и пр- ы подготовки проводились на берегу на базе специальной фотолаборатории и кадровый RVAH- Основной задачей личного состава центра была оперативная обработка разведданных начинавшаяся сразу после посадки самолета и подготовка соответствующих планшетов для командования сразу ее ния -ыли развития техники, когда было практически невозможно получать информацию в реальном масштабе времени. Со данием подобных центров появилась возможность сократить время на принятие решения командованием.

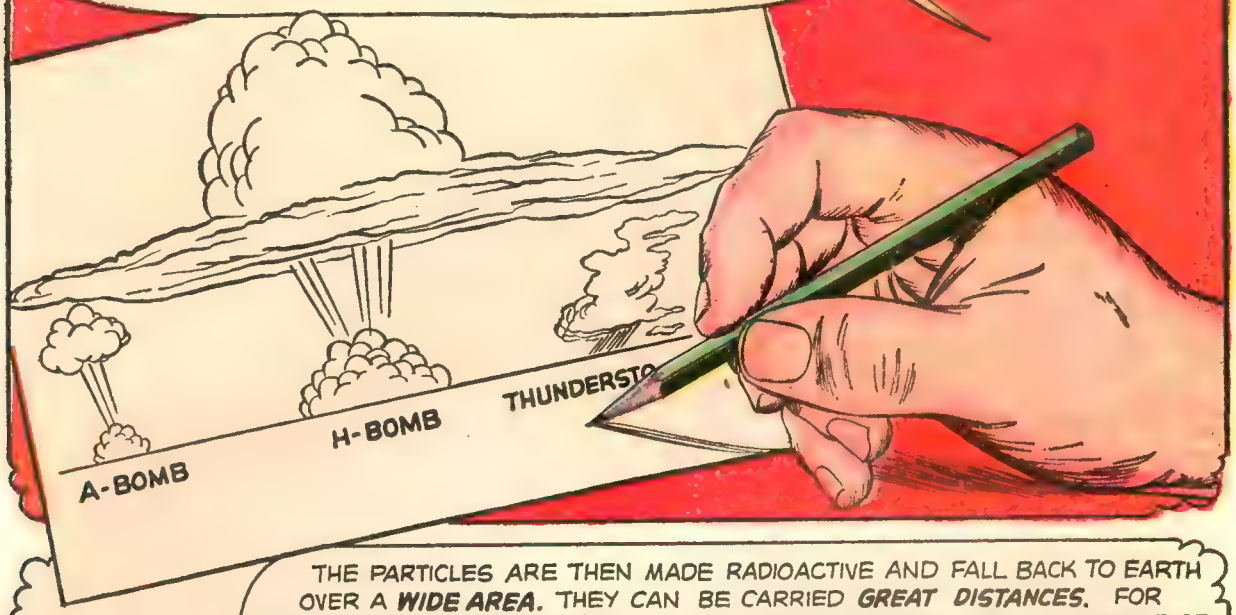
UNITED STATES OF AMERIKA NAVAL AVIATION FORCES

MAXIMUM SPEED: MACH 2.0 (1,149 KNOTS, 1,320 MPH, 2,123 KM/H) AT 40,000 FT (12,200 M)
COMBAT RADIUS: 1,121 NMI[DUBIOUS – DISCUSS] (1,289 MI, 2,075 KM)
FERRY RANGE: 1,571 NMI(1,807 MI, 2,909 KM)
SERVICE CEILING: 52,100 FT (15,880 M)
RATE OF CLIMB: 8,000 FT/MIN (40.6 M/S)
WING LOADING: 80.4 LB/FT² (308.3 KG/M²)
THRUST/WEIGHT: 0.72

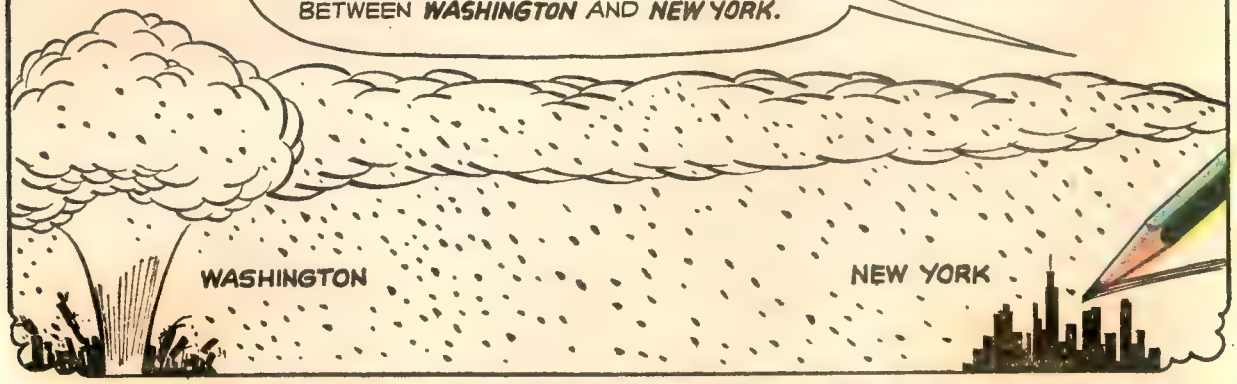
XR


BACK IN CENTERVILLE, MAYOR BROWN IS DIRECTING THE CITY'S EMERGENCY DISASTER PLAN...
WELFARE
FIRE
POLICE
RED CROSS
HEAL

WHEN AN **ATOMIC** OR **HYDROGEN** BOMB IS EXPLODED CLOSE TO THE GROUND, THOUSANDS OF TONS OF EARTH AND ROCK ARE TURNED INTO PIECES AS SMALL AS DUST. THESE SMALL PIECES ARE SUCKED UPWARD IN A GREAT **MUSHROOM** CLOUD SOMETIMES TO A HEIGHT OF **80,000 FEET OR MORE.**



THE PARTICLES ARE THEN MADE RADIOACTIVE AND FALL BACK TO EARTH OVER A **WIDE AREA.** THEY CAN BE CARRIED **GREAT DISTANCES.** FOR INSTANCE, IF YOU ARE AS MUCH AS 200 MILES DOWNWIND FROM THE SCENE OF SUCH AN EXPLOSION YOU CAN BE EXPOSED TO THE DANGERS OF RADIO-ACTIVE FALLOUT THAT'S ROUGHLY THE DISTANCE BETWEEN **WASHINGTON** AND **NEW YORK.**



SURVEY
INSTRUMENTS
THE **ONLY WAY** TO FIND OUT IF AN AREA HAS BEEN MADE DANGEROUS FROM RADIOACTIVE FALLOUT IS TO USE **SPECIAL INSTRUMENTS** THAT WILL REACT TO RADIOACTIVITY... HERE ARE SOME PICTURES OF THEM.

XR

XR

Saab 37 ‘Viggen’

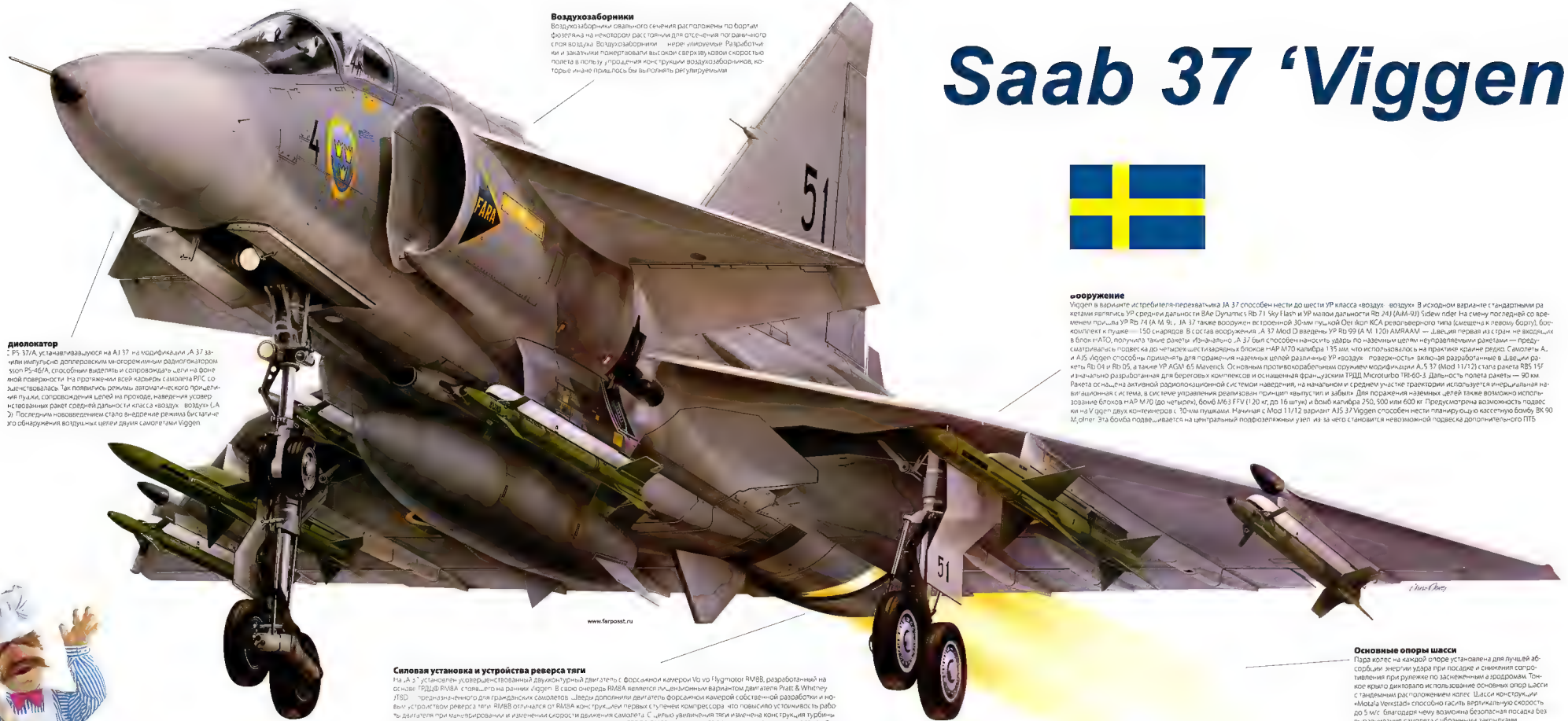
Crew: One
Length: 16.4 m (53 ft 9 in)
Wingspan: 10.6 m (34 ft 9 in)
Height: 5.9 m (19 ft 4 in)
Wing area: 46 m² (500 ft²)
Empty weight: 9,500 kg (21,000 lb)
Loaded weight: AJ 16,000 kg; JA 17,000kg (AJ 35,273 lb; JA 37,478 lb [32])
Max. takeoff weight: 20,000 kg (44,000 lb)
Powerplant: 1 × Volvo RM8B afterburning turbofan, 72.1 kN / 125.0 kN afterburning (16,200 lbf dry, 28,110 lbf afterburning)

32. Антенна приемопередающей радиостанции SSR
33. Проблесковый световой маяк
34. Отсек оборудования системы кондиционирования
35. Теплообменник
36. Заправочная горловина топливного бака
37. Входное устройство двигателя
38. Вспомогательное оборудование
39. Узел крепления лонжерона ПГО
40. Бортовой отсек БРЭО, правый и левый борта
41. Аварийный ветровой генератор
42. Сотовые панели закрылка ПГО
43. Гидроаккумулятор
44. Светящаяся полоска строевого огня
45. Центральный фюзеляжный топливный бак
46. Узел крепления двигателя
47. ТРДДФ Volvo Flygmotor RM8A
48. Устройство предварительного охлаждения отбираемого воздуха
49. Масляно-топливный радиатор
50. Узел крепления лонжерона крыла к шпангоуту фюзеляжа
51. Бак отрицательных перегрузок топливной системы
52. Антенна радиокомпаса
53. Панель обшивки правой консоли крыла
54. Внешний пилон для подвески ракеты
55. Обтекатель антенны системы РЭБ
56. Внешняя часть крыла с увеличенной хордой
57. Правый аэронавигационный огонь
58. Секции правого элевона
59. ПВД
60. Антенна в законцовке киля
61. Киль многолонжеронной конструкции
62. Гидропривод руля направления
63. Узлы крепления лонжеронов киля
64. Гидравлический ручной насос для складывания киля при хранении самолета в ангаре
65. Левый воздушный тормоз
66. Гидропривод воздушного тормоза
67. Канал форсажной камеры
68. Гидроприводы створок регулируемого сопла форсажной камеры
69. Эжектор (закрывается при скорости полета выше M=1)
70. Винтовой привод эжектора
71. Пневмопривод створки реверса тяги
72. Антенна приемника предупреждения об электромагнитном облучении
73. Сопло двигателя/форсажной камеры
74. Створки системы реверса тяги
75. Хвостовой аэронавигационный огонь
76. Пневмопривод нижней створки реверса тяги
77. Левая внутренняя секция элевона
78. Гидроприводы элевона
79. Сотовая конструкция элевона
80. Левая внешняя секция элевона
81. Левый аэронавигационный огонь
82. Гидропривод внешней секции элевона
83. УР «воздух—воздух» Saab Bofors Rb 24 (лицензионный Sidewinder)
84. Направляющая ракеты
85. Обтекатель антенны системы РЭБ
86. Контейнер ложных целей Bofors BOZ-9
87. Подкрыльевой пилон
88. Сотовая панель обшивки крыла
89. Многолонжеронная конструкция крыла
90. Крыльевой топливный бак-кессон
91. Главный лонжерон
92. Ниша основной поры шасси
93. Подкос стойки основной опоры шасси
94. Гидропривод уборки/выпуска шасси
95. Нервюра крепления основной опоры шасси
96. Стойка основной опоры шасси
97. Двухзвенник
98. Установленные тандемом колеса основной опоры шасси
99. Правый подфюзеляжный пилон
100. Контейнер с фотоаппаратурой
101. УР «воздух—поверхность» Rb 05
102. Противокорабельная УР Rb 04E
103. Адаптер для подвески ракет

Maximum speed: Mach 2.1, 2,231 km/h (1,386 mph) at 11,000 m (1,386 mph at 36,100 ft (11,003 m))
Range: 2,000 km internal fuel only (1242 mi)
Service ceiling: 18,000 m (59,100 ft)
Rate of climb: 203 m/s (12,200 m/min) (40,026 ft/min [32])

XR

Saab 37 ‘Viggen’



Воздухозаборники
Воздухозаборники овального сечения расположены по бортам фюзеляжа на некотором расстоянии для отсечения пограничного слоя воздуха. Воздухозаборники нерегулируемые. Разработчики и заказчики пожертвовали высокой сверхзвуковой скоростью полета в пользу упрощения конструкции воздухозаборников, которые иначе пришлось бы выполнять регулируемыми

Диолокатор
…PS-37/A, устанавливающуюся на AJ 37 на модификации „A 37 завершил импульсно доплеровским многорежимным радиолокатором …ason PS-46/A, способным выделять и сопровождать цели на фоне …мной поверхности. На протяжении всей карьеры самолета P/C совершенствовалась. Так появились режимы автоматического прицеливания пушки, сопровождения целей на проходе, наведения усовершенствованных ракет средней дальности класса «воздух–воздух» (…A 3). Последним нововведением стало внедрение режима быстрого обнаружения воздушных целей двумя самолетами Viggen

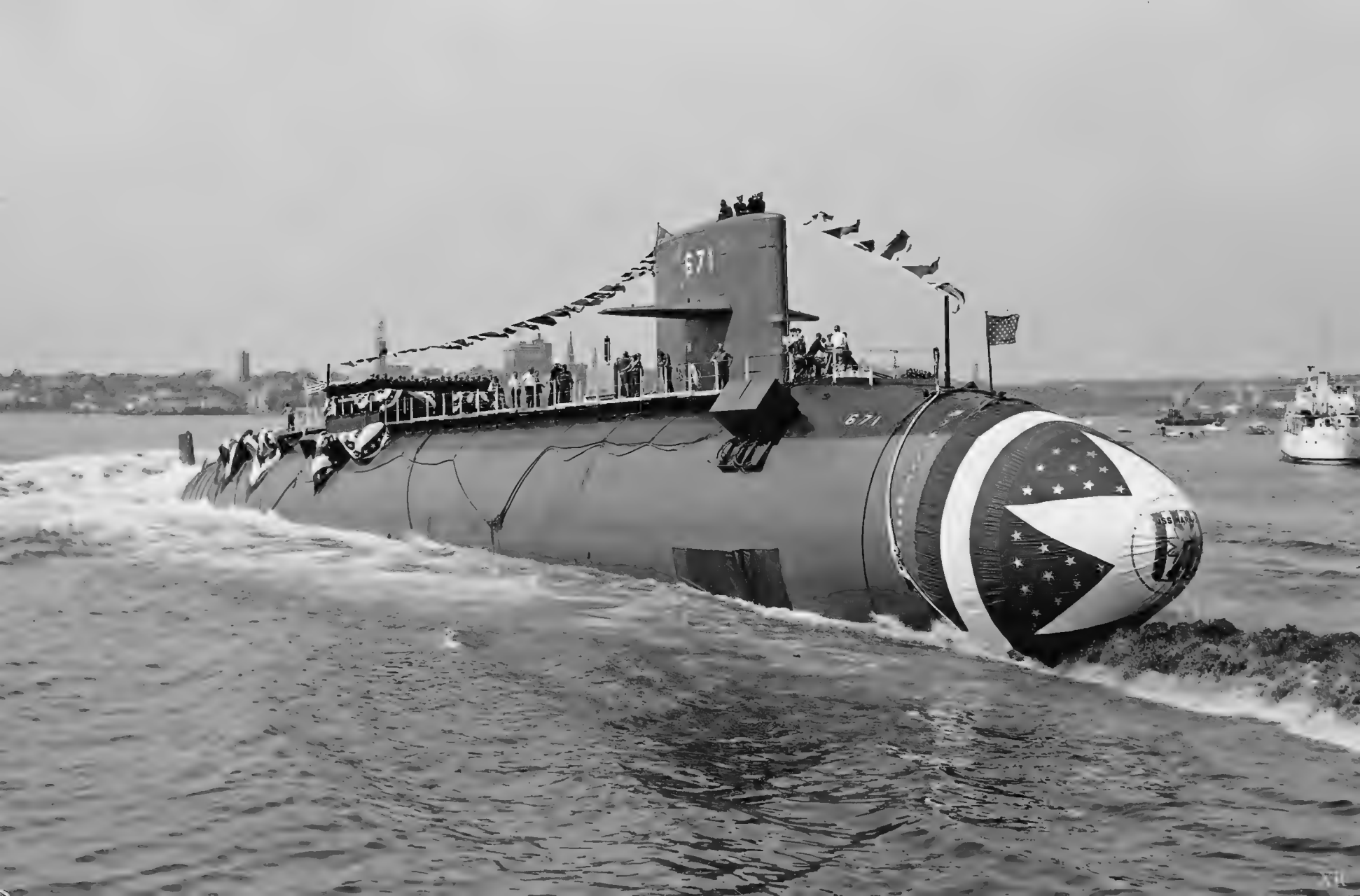
Вооружение
Viggen в варианте истребителя-перехватчика JA 37 способен нести до шести УР класса «воздух–воздух». В исходном варианте стандартными ракетами являлись УР средней дальности BAe Dynamics Rb 71 Sky Flash и УР малой дальности Rb 24J (AIM-9J) Sidewinder. На смену последней со временем пришла УР Rb 74 (A M 9L). JA 37 также вооружен встроенной 30-мм пушкой Oerlikon KCA револьверного типа (смещена к левому борту), боекомплект к пушке — 150 снарядов. В состав вооружения „A 37 Mod D введены УР Rb 99 (A M 120) AMRAAM — „Швеция первая из стран не входящих в блок НАТО, получила такие ракеты. Изначально „A 37 был способен наносить удары по наземным целям неуправляемыми ракетами — предусматривалась подвеска до четырех шестизарядных блоков FAP M70 калибра 135 мм, что использовалось на практике крайне редко. Самолеты A… и AJS Viggen способны применять для поражения наземных целей различные УР «воздух–поверхность», включая разработанные в Швеции ракеты Rb 04 и Rb 05, а также УР AGM-65 Maverick. Основным противокорабельным оружием модификации A, S 37 (Mod 11/12) стала ракета RBS 15F и изначально разработанная для береговых комплексов и оснащенная французским ТРДД Microturbo TRI-60-3. Дальность полета ракеты — 90 км. Ракета оснащена активной радиолокационной системой наведения, на начальном и среднем участке траектории используется инерциальная навигационная система, в системе управления реализован принцип «выпустил и забыл». Для поражения наземных целей также возможно использование блоков FAP M70 (до четырех), бомб M63 FFV (120 кг, до 16 штук) и бомб калибра 250, 500 или 600 кг. Предусмотрена возможность подвески на Viggen двух контейнеров с 30-мм пушками. Начиная с Mod 11/12 вариант AJS 37 Viggen способен нести планирующую кассетную бомбу BK 90 Mjölner. Эта бомба подвешивается на центральный подфюзеляжный узел, из-за чего становится невозможной подвеска дополнительного ПТБ

Силовая установка и устройства реверса тяги
На „A 37 установлен усовершенствованный двухконтурный двигатель с форсажной камерой Volvo Flygmotor RM8B, разработанный на основе ТРДДФ RM8A стоявшего на ранних Viggen. В свою очередь RM8A является лицензионным вариантом двигателя Pratt & Whitney JT8D, предназначенного для гражданских самолетов. Шведы дополнили двигатель форсажной камерой собственной разработки и новым устройством реверса тяги. RM8B отличался от RM8A конструкцией первых ступеней компрессора, что повысило устойчивость работы двигателя при маневрировании и изменении скорости движения самолета. С целью увеличения тяги изменена конструкция турбины высоко… давления и систем камеры сгорания. Максимальная сухая тяга ТРДДФ RM8B составляет 7384 кгс, тяга на форсаже — 12,5 кгс. С новым двигателем Viggen стал на вольных высотах развивать скорость до M 2. Среди всех реактивных истребителей того периода устройства реверса тяги были установлены только на Saab Viggen и Panavia Tornado. На Tornado устройства реверса тяги представляли собой вне…ние механические створки, которые закрывали сопло, перенаправляя реактивный поток газов вперед. На Viggen створки установлены внутри хвостовой части фюзеляжа и поток перекрывается с одновременным открытием трех кольцевых щелей в фюзеляже. На обоих самолетах системы реверса тяги срабатывают автоматически после обжатия амортизаторов стоек основных опор шасси

Основные опоры шасси
Пара колес на каждой опоре установлена для лучшей абсорбции энергии удара при посадке и снижения сопротивления при рулежке по заснеженным аэродромам. Тонкое крыло диктовало использование основных опор шасси с тандемным расположением колес. Шасси конструкции «Motala Verkstads» способно гасить вертикальную скорость до 5 м/с, благодаря чему возможна безопасная посадка без выравнивания самолета с убранными закрылками

YAR-ZOOM DA-BOOM!

www.farposst.ru


671
671

TRAINING BULLETIN

SCHOOL SERIES

MAY 1952 NUMBER 4

Federal Civil Defense Administration
training and education office

This is one of a series of bulletins produced for use in Civil Defense Training. It is not intended as an exhaustive or full treatment. Original distribution is limited and duplication in quantity is urged by State and local Civil Defense offices. Save your copies and build a file.

DUCK and COVER

Duck and Cover is a 10 minute, 16mm. black and white, sound film produced by Archer Productions, Inc. of New York, for Federal Civil Defense Administration in consultation with the Safety Commission of the National Education Association. The film demonstrates for elementary school children the basic principles of atomic self-protection. The star of the picture, which was filmed at Public School No. 152, Astoria, New York, is "Bert the Turtle," an original cartoon character who ducks and covers by instinct at the threat of danger.

The film may be borrowed from your local or State civil defense office, or purchased from United World Films, Inc., 1445 Park Avenue, New York 29, New York.

If Duck and Cover is carefully integrated with a study of civil defense, it can help your pupils acquire a quick and easy technique for self-protection from an atomic explosion as well as help them understand the need for civil defense. By applying to Duck and Cover the usual procedures you follow in showing an instructional film, you will be making the civil defense learning experience of your pupils more concrete and effective.

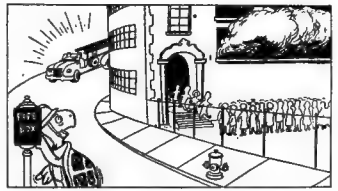
Remember that your introductory remarks and the lead-in and follow-up activities of the class determine to a great extent the amount pupils learn from a film. This film should be shown to a class when such an activity can take place as a natural part of learning.

A. Preview the film and analyze it. Ask yourself:
   1. What information will I get from the film?
      a. Procedure and reasons for ducking and covering.
      b. When we will need to duck and cover:
         1. Attack with warning.
         2. Attack without warning.
      c. Where:
         1. In classroom.
         2. In school cafeteria.
         3. In school corridor.
         4. On school playground.
         5. On bus.
         6. On street - walking, riding a bicycle.
         7. Playing outside house.
         8. In country.

      d. How we are warned of attack.

   2. Has anything important been omitted?
   3. What topics can be discussed and investigated further?
      a. Shot of radar equipment may lead to question of how it works.
      b. Shot of filter center may lead to discussion of its location, who mans it, how planes are identified, other ways citizens can help in civil defense.
      c. Atomic flash may lead to questions about other effects of atomic explosions, additional uses of atomic energy.
   4. What scenes may arouse fear?

B. Be sure that Duck and Cover fits smoothly into your unit of teaching.
   1. Probe pupils' former experiences or knowledge about rules set up for health, protection from fire, safety from traffic hazards, and similar subjects.



   2. Introduce civil defense as: first, protection of individual; second, protection of groups.
   3. Discuss the need for civil defense rules today.
   4. Discuss questions raised by the class which suggest presence of fear.

HOW TO PRESENT DUCK AND COVER

A. Show film early in the program.
B. Encourage questions by children. Reserve those not on the specific topic such as radar, filter center, or radiation for later discussion. Place questions on a side board so that pupils will realize that they will be discussed later.
C. Repeat showing of film if necessary or if requested to clarify details.
D. Ask questions to bring out specific points or to stress important ones. For example: Did anyone fail to follow directions? What should he have done to be correct?

A. Have pupils draw up set of rules for what to do under enemy attack when:
   1. They are at various places.
   2. Attack occurs with warning.
   3. Attack occurs without warning.
B. Be sure they know the community's warning signals.
C. Let pupils practice ducking and covering.
D. Have them work out a civil defense vocabulary. Include such words as:
   1. Civil defense.
   2. Alert.
   3. Duck.
   4. Cover.
   5. Shelter.
   6. With warning.
   7. Without warning.
   8. Atomic bomb.
   9. Flash.
   10. Block warden.
   11. Radiation.

E. Discuss other questions children may have asked. Additional subjects for instruction that could come directly from this discussion period might include:
   1. Atomic energy and its uses.
   2. Dependence of communities upon one another, of countries upon one another.
   3. Biological and chemical warfare.
   4. How other animals protect themselves from danger.

   5. Radioactivity.
   6. Civil defense services (fire, police, rescue, health, warden, etc.)

F. Provide each pupil with a copy of Bert the Turtle, (a pamphlet for school children, available through your local or State civil defense office).

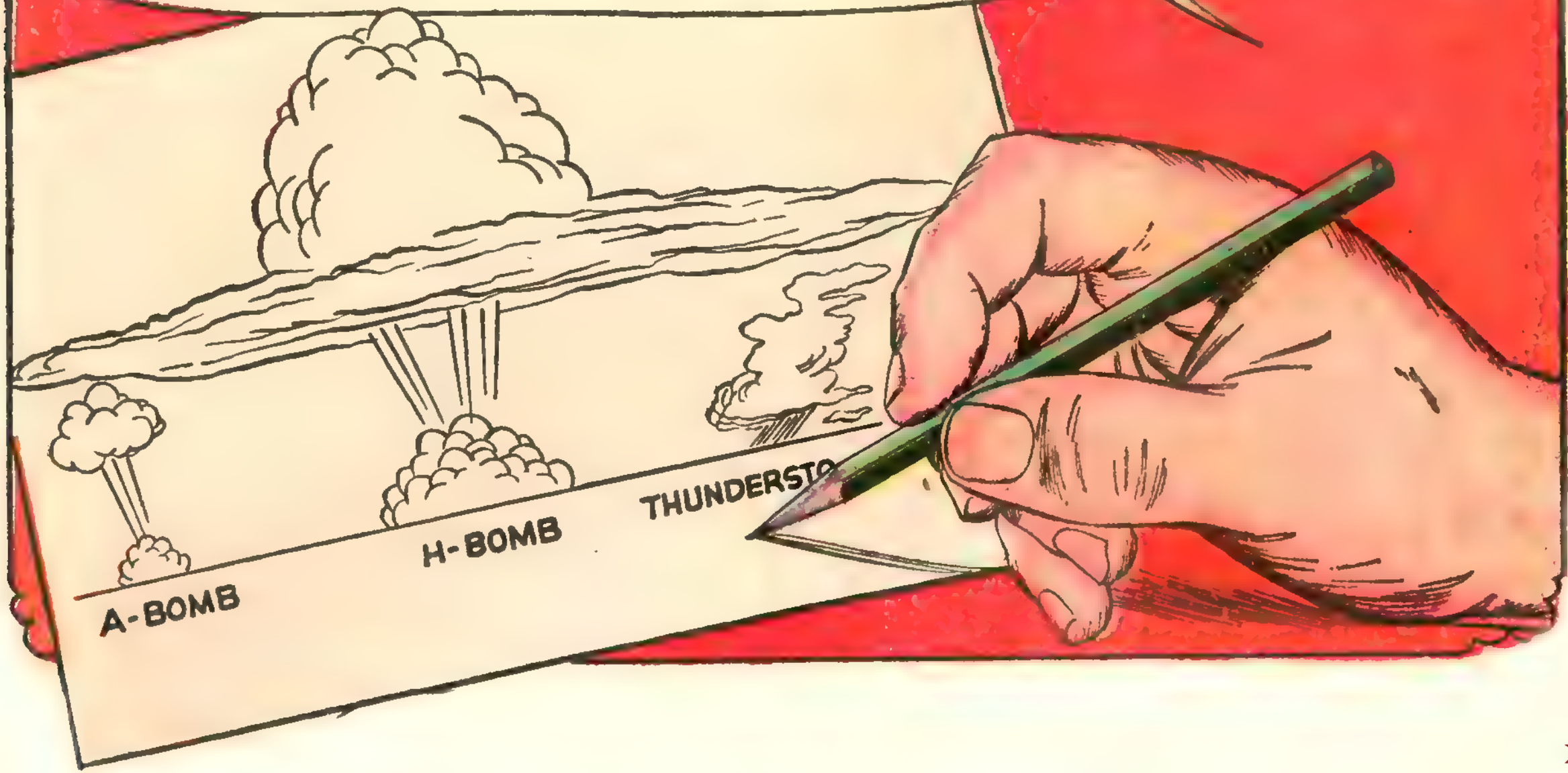
HOW TO FOLLOW-UP DUCK AND COVER

A. Practice ducking and covering.
B. Summarize rules for action in attack with and without warning.
C. Read and discuss Bert the Turtle.
D. Review location of pupils' shelter areas for various hours of the day.
E. Conduct a vocabulary "bee."

XR

RAND SHELTERS
VA·7·6000 Phones HO·5·0105

WHEN AN **ATOMIC** OR **HYDROGEN** BOMB IS EXPLODED CLOSE TO THE GROUND, THOUSANDS OF TONS OF EARTH AND ROCK ARE TURNED INTO PIECES AS SMALL AS DUST. THESE SMALL PIECES ARE SUCKED UPWARD IN A GREAT **MUSHROOM** CLOUD SOMETIMES TO A HEIGHT OF **80,000 FEET OR MORE.**



XR

D-40-NA Sabre

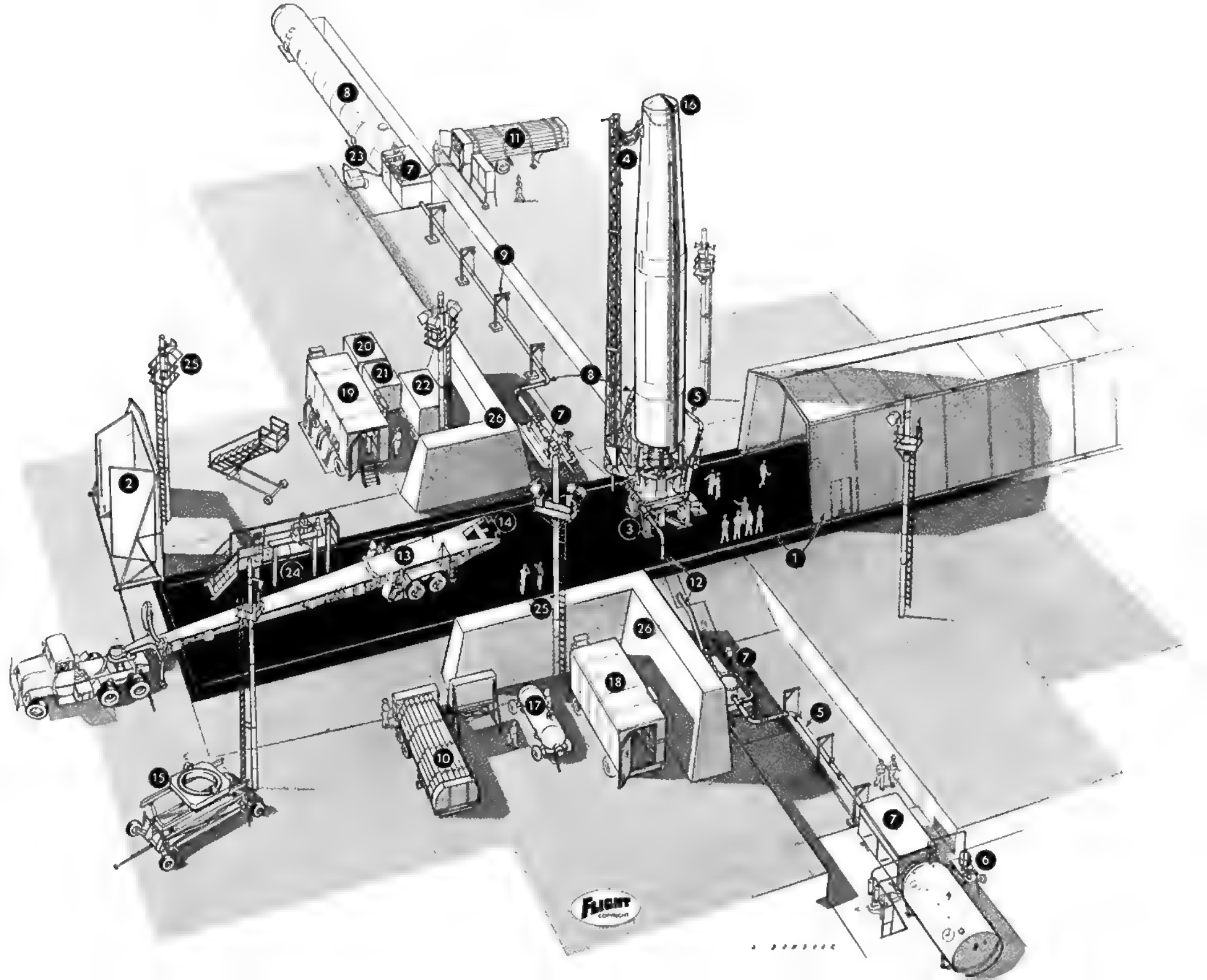
ачали поступать на вооружение ВВС США в 1951 году, а из 1045 перехватчиков командования ПВО 1026 яв- инство самолетов базировалось на территории США, количестве F-86D принимали участие в корейской

а управления оружием

Подготовка летчиков

Вверху: в США имеется немало пригодных к полетам Sabre, но в Великобритании сохранился единственный летающий самолет данного типа — F-86A. Машина является собственностью «Golden Apple Trust» и эксплуатируется компанией «The Aircraft Restoration Company» из Дансфорда. Самолет регулярно принимает участие в показательных полетах на разнообразных авиашоу, имитируя воздушные бои с MuF-15, в роли которого выступает самолет WSK SBLim-2A (MuF-15УТИ, построенный в Польше по лицензии).

XR


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

Дозаправка
Первая операция с дозаправкой в воздухе состоялась 6 июля 1951 года, когда RF-80A из 67-го крыла, оснащенные баками с приемными штангами, получили топливо от заправщика KB-29M.

Окраска
В Корее RF-80 обычно имели цвет натурального металла с антибликовыми панелями перед кабиной. Небольшое число самолетов несло экспериментальный темно-зеленый камуфляж на верхних поверхностях.

An ordinary frame house will offer some protection. It may cut radiation danger by about one-half. Get on the floor, away from doors and windows, or preferably go to a location with additional walls at the center of the house.

A basement shelter will offer even more protection. The radiation danger there might be one-tenth as bad.

An underground shelter with 3 feet of earth above it will give you almost complete protection if it is equipped with a door and an air filter.

An old-fashioned storm cave or root cellar is ideal. Stock it with food staples as Grandmother did. Add water supplies, first-aid kits, blankets, a lantern, fuel, portable radio—things you will need for a few days.

SEEK THE BEST SHELTER AVAILABLE!

U.S. AIR FORCE

THE BIG CAMPAIGN FOR THE BIGGEST STORY OF OUR TIME...

1. Massive news coverage achieved by the unprecedented 18-city global premiere on all seven continents, paced by this full page newspaper ad in every premiere city.

The New York Times.

Topics

"On the Beach"

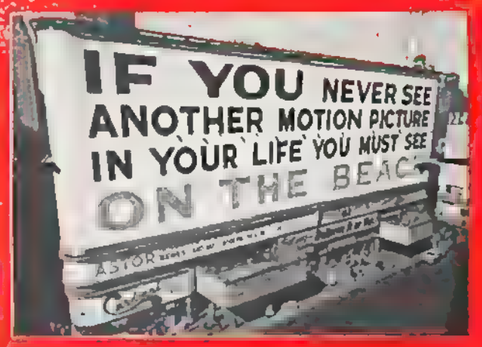
Today marks a milestone in the history of the motion picture, for this is the day when "On the Beach" opens simultaneously in eight languages and in cities across the face of the earth. This is the film version of Nevil Shute's recent best-selling novel, which projects us five years into the future, after nuclear warfare has wiped out the Northern Hemisphere and the lone survivors in Australia are awaiting radioactive drift. The action centers about the responses of five principal characters and the people around them to a situation that at the moment is imaginative. But that can become in an instant so harrowingly real that its mere possibility haunts all of us. New York and Moscow—emotional capitals of East and West—are on the list of premiere cities, along with key centers on all six inhabited continents. Thousands of leaders of public opinion already have seen the film at previews, and the number of those to see it is expected to reach 100,000,000 in the twelve months ahead.

The Ménage Films

No punches are pulled in this film. Its message is vigorous and meaningful for all of us. No one denies its frank purpose to portray in human terms just what will happen if, in our childish and irresponsible way, we allow one of us to pull the trigger that will mean no more existence. Its makers obviously hope that so many will see the film as to help render this possibility impossible. Message films are nothing new, of course, but seldom has a filmed message been conceived on so grand a scale. D. W. Griffith, whose contributions to the motion picture include development of the close-up, the fade, the cross dissolve, and parallel story action made film history in 1916 with his remarkable "Intolerance"—a story of man's inhumanity to man in the name of virtue—but he did not succeed in changing human history. The release of his film was followed almost immediately by persecution of German-Americans, the jailing of conscientious objectors to military service and increasing racial tension.

Existence in the Balance

Cinematic history then, does not indicate too much hope for the efforts of those responsible for "On the Beach" in persuading us to quit dancing on a tightrope across the Grand Canyon. On the other hand not one of the great pacifist films of the period between the wars ever attracted an audience of more than 7,000,000. Perhaps the sheer numbers of those who ultimately see "On the Beach" will have the effect its producers hope for. The stakes this time are even greater, of course, than they were when all we were trying to do was to end war. This time existence itself is in the balance and we grasp at every straw that promises us hope. This is the spirit in which we look forward to "On the Beach," for, as Representative Chet Holifield, chairman of the House subcommittee on radiation effects, has said: "This film should strengthen our determination to solve the most urgent problem of our time—the problem of survival in the Age of

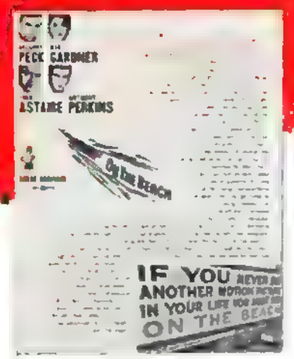


3. The slogan that captured the interest of moviegoers everywhere . . . and still growing in its impact. Seen here on the giant sign atop the Astor Theatre, Times Square. (SEE HOW YOU CAN USE IT . . . ON PAGE 6)!

4. Artists from every nation designed these special posters announcing the premiere in their own countries. A fascinating 40 x 60 display available for your theatre lobby! (SEE PAGE 4)!

5. Intensive screenings for opinion makers and word-of-mouth media achieved tremendous penetration. (SEE HOW YOU CAN MAKE THIS A KEY ELEMENT IN YOUR CAMPAIGN . . . ON PAGE 6)!

6. School penetration for the vitally important student audience has been pre-conditioned by the important Seventeen Magazine promotion. (SEE HOW TO PUT THIS TO WORK LOCALLY . . . PAGE 8)!



7. Women's Clubs everywhere have responded with great interest to the special materials made available to them for meeting programs and membership announcements. (SEE HOW TO WIN THEIR COOPERATION, PAGE 8)!

8. Junior Ambassador program in cities around the world achieved major newspaper space and wide acclaim. Newspaper sponsors of search for Junior Ambassadors overjoyed with good will achieved. (SEE HOW TO ADAPT THIS EXCITING PROGRAM THROUGH LOCAL COLLEGES . . . PAGE 6)!

A Kenyon VI Adolphus, [illegible] Sweden, at the Stockholm premiere.

B The Japanese Royal Family at the Tokyo opening (l. to r.) Prince Yoshi, Princess Takamatsu, with the President of the Japanese Red Cross and the Governor of Tokyo.

C Gregory Peck at the showing in Moscow.

D Ava Gardner at the glittering festivities in Rome.

9. Royalty, celebrities from the arts, sciences, business and government, attended the brilliant global premieres, affirming by their presence the indisputable fact that "On The Beach" is

THE BIGGEST MOTION PICTURE

"Stanley Kramer has produced a film which has a terrifying excitement about it." — Robert M. Hutchins, The Fund for the Republic

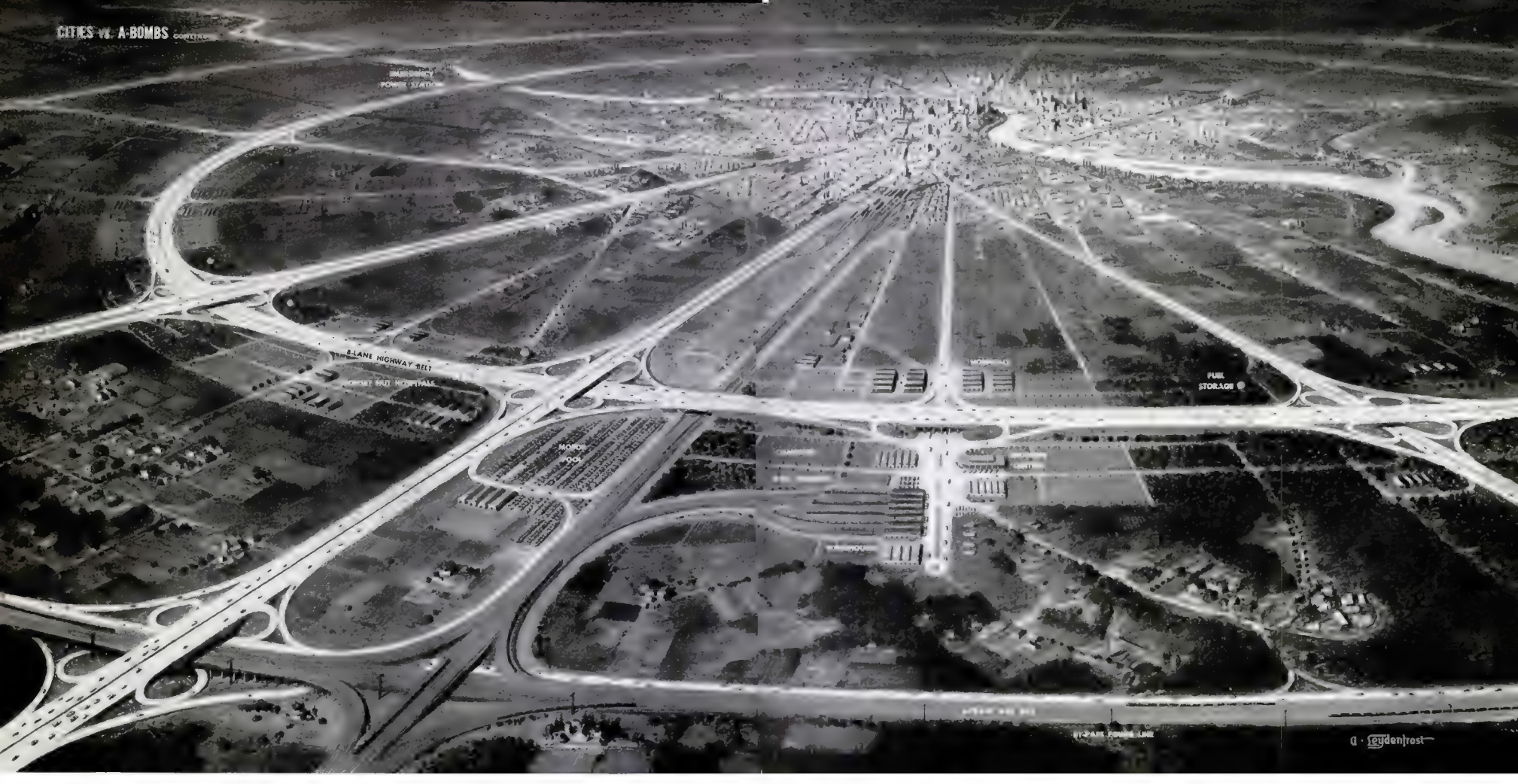
"I hope that a large percentage of our citizens will take the time to see the film, 'On The Beach'!" — Chet Holifield, Chairman Joint Committee on Atomic Energy

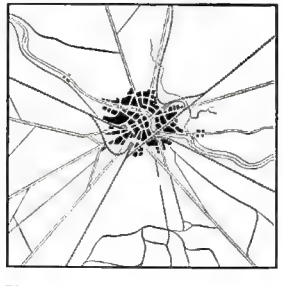
"It may be that some years from now we can look back and say 'On The Beach' is the picture that saved the world." — Dr. Linus Pauling, 1954 Nobel Prize-winner for Chemistry

"A film that aims at something big, and emerges as something tremendous." — Arthur Knight, Saturday Review

MAKE THIS ENORMOUSLY SUCCESSFUL CAMPAIGN WORK FOR YOU, TOO!

XR





LIFE BELTS AROUND CITIES WOULD PROVIDE

The Wiener civil defense plan is calculated to meet two urgent needs in the after-bomb crisis. It would tend to check panic among the survivors of a city that has been A-bombed by giving them a definite place to head for, an escape route that could be reached by moving in any direction away from the city. It would also enable vital transportation services to continue functioning, taking food and supplies to the bombed city and bringing casualties out. The emergency transportation system suggested by Wiener would be tied in with existing rail and road facilities; thus no city would be completely cut off from outside aid.

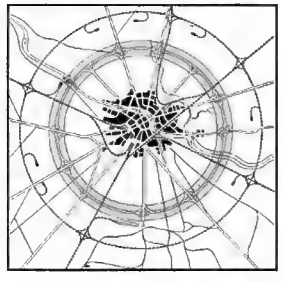
The drawing above shows a mythical U.S. city equipped with the three major elements in Wiener's proposed escape route and communications network: 1) additional roads, radiating like the spokes of a wheel from the center of the metropolitan area, to serve as exits for the people, 2) an express highway that encircles the city about 10 miles from the edge of the built-up area to intersect every road that leads out of the city, 3) a railroad belt line five miles beyond the express highway to provide a direct auxiliary link between existing rail routes (*pp. 80, 81*).

Between the city and the express highway that rings it, zoning regulations will prohibit almost all construction. This area will be kept as clear as possible to serve as a safety zone, permitting an unhindered exit from the city. But along the highway life belt will be built the hospitals, supply warehouses, truck depots and power stations necessary to cope with the emergency. Nearby land will be reserved as parks and made ready for large tent cities which could quickly be erected to shelter the refugees. Supermarkets, suburban homes and small businesses would be permitted to grow up near the life belt to supplement the emergency rations and housing set up for a fleeing population.

In any circumstance the Wiener plan would be useful. In war it would bolster the nation's civilian defenses. In peace it would expand and accelerate the current trend of many city dwellers toward the suburbs and help relieve the traffic congestion which plagues most U.S. cities.

◀ MAP OF MYTHICAL CITY (TOP) BEFORE THE PLAN

A PLACE FOR BOMBED-OUT REFUGEES TO GO



SAME CITY WITH PROPOSED OUTER BELTS ▶

CONTINUED ON NEXT PAGE

XR

Man Among Men!

That's the Airborne Soldier for You

Swift—Sudden—Strong—he comes out of the skies to fight on the ground . . . a volunteer and proud of it.

By the very nature of his work he must be a finished soldier—capable in every phase of his profession—ready and able to do anything from hand-to-hand combat to packing his chute or repairing a field radio.

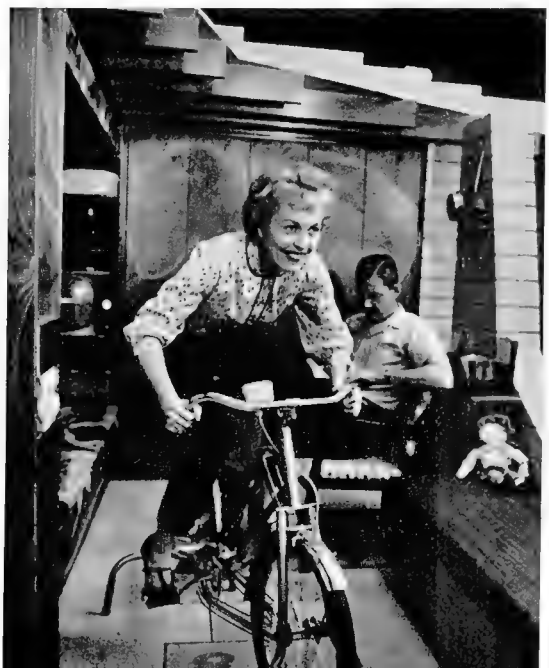
This all contributes to the Airborne Soldier's outstanding characteristic—self-reliance. It shows in his walk—his talk—and in his work. The Airborne Soldier is truly "*A Man Among Men*"!

There may be a place for YOU in the Airborne—find out today—pick up this folder "Hook up with the Airborne" at your nearest U. S. Army and U. S. Air Force Recruiting Station—Get all the facts, then Join the Airborne.

THE AIRBORNE
of the
U. S. ARMY

XR

A CUTAWAY VERSION SHOWS A SURVIVAL SHELTER THAT IS DESIGNED TO FIT INTO ALMOST ANY BASEMENT. THE RADIO AND TV SETS ARE BATTERY POWERED



A Spare Room Fallout Shelter

For years civil defense heads, who know that survival shelters would save millions of lives if America were attacked, have had a frustrating job of trying to persuade people to build them. The shelters looked cold and frightening and besides no one has wanted to put money into space that might never be used. Recently, the government asked the American Institute of Decorators to design a shelter that would not only look inviting but could also be used for everyday living.

A model of the room is now being shown in Chicago and will soon be displayed all over the country. The room is 8½x12 feet and provides living space for a family of five. The lavatory and toilet facilities are in one corner. Bunk beds can be converted into sofas by day. Cooking is done on alcohol stoves. A family could live comfortably enough in this room for two weeks until radiation decreased outside. Cost with built-in cabinets: $2,500. If war never comes, children can claim it for a hideaway, father can use it for poker games and mother can count on it as a guest room.

EXERCISING EQUIPMENT is provided—a stationary bicycle and the hopscotch game on the floor can keep both grownups and children occupied.

THE ATOMIC BOMB

as described by

Christ, Daniel, Peter and John

in the

Light of Bible Prophecy

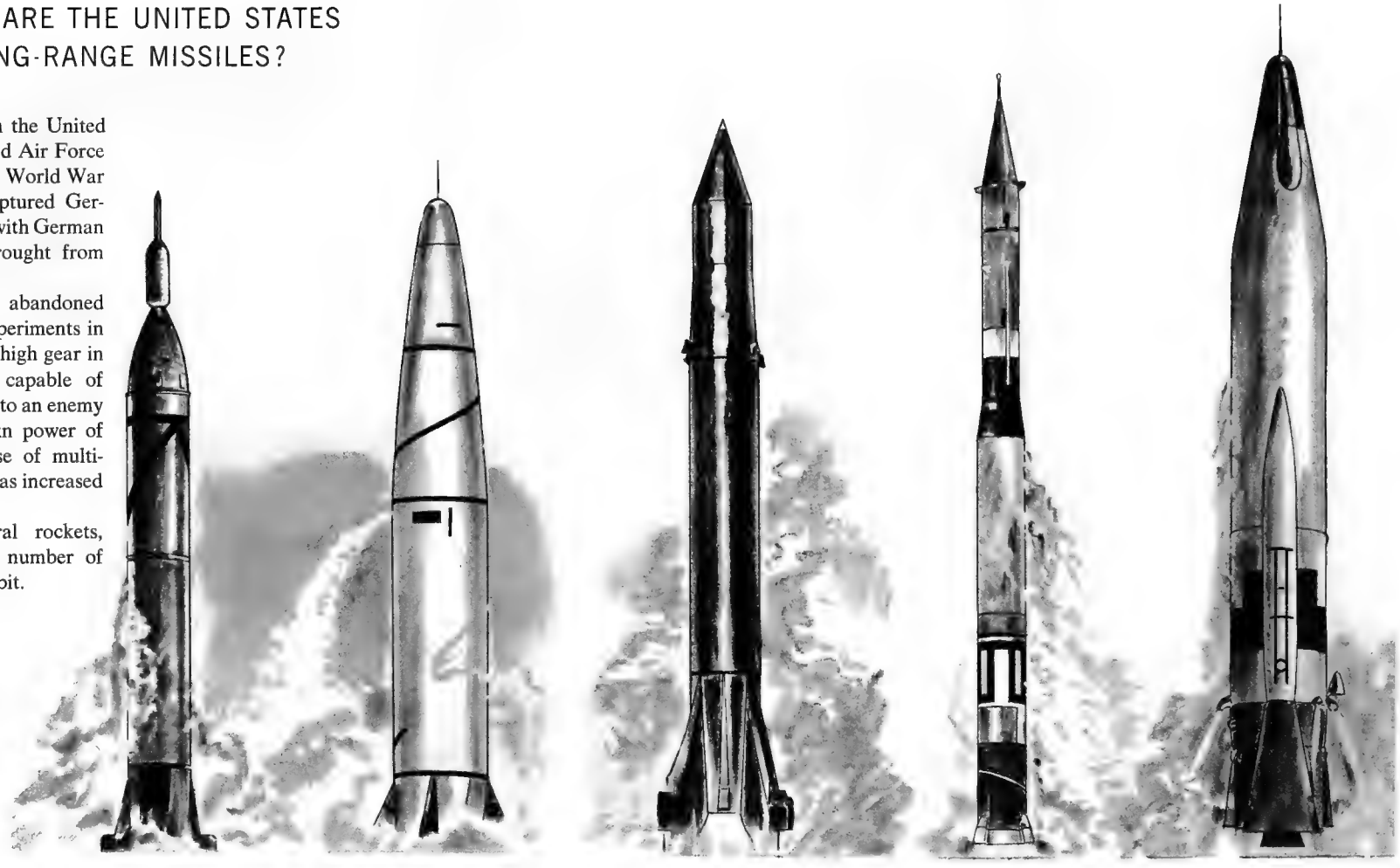
By DAN GILBERT

WHICH ARE THE UNITED STATES LONG-RANGE MISSILES?

MISSILE experiments in the United States Army, Navy and Air Force began soon after the end of World War II, when a quantity of captured German V-2 missiles, together with German rocket specialists, were brought from Europe.

Rocket building, almost abandoned since Robert Goddard's experiments in the early 1900's, went into high gear in order to perfect missiles capable of carrying a nuclear warhead to an enemy target. With the increase in power of rocket engines and the use of multi-stage missiles, their range was increased to over 5,000 miles.

Combinations of several rockets, mounted in stages, put a number of American satellites into orbit.



The *Saturn*, described as "the world's largest rocket," is 162 feet tall and weighs 925,000 pounds. Its booster is made up of eight rocket engines clustered together, and it produces a thrust of 1,500,000 pounds at take-off. The first launching of the *Saturn* took place at Cape Canaveral, Florida on October 27, 1961. Ballistic missiles are passing through experimental phases, which will probably change their size, weight and configuration many times in the future.

	JUPITER	THOR	REDSTONE	VANGUARD	ATLAS
Service Branch	U.S. Army	U.S. Air Force	U.S. Army	U.S. Navy	U.S. Air Force
Height (feet)	58	62	69	72	75
Weight (pounds)	105,000	110,000	?	22,000	243,000
Range (miles)	1,500	1,500	200+	300 Mi. Alt.	9,000
Contractor	Chrysler	Douglas	Chrysler	Martin	Convair

Command crew, in their distinctive garb (far left), arrive from the Air Force base to begin their twelve-hour stint in the underground control capsule. They check in with the security guards, then descend to the capsule to relieve their fellow officers. Standing at attention, the new team receives the neck chains from which hang the launch keys that fire the missile, and the codes that translate the orders. The retiring team then rides the elevator to the surface while the new crew settles down to its vigil.

The capsule team work steadily at their respective consoles, recording and interpreting electronic data on the condition of the missiles buried in silos five miles distant. Separation of the consoles precludes the possibility of a berserk or accidental firing of the missile. The basic job is to keep on the alert for the fatal firing they hope will never come.

The new breed of Air Force missilemen report for duty, briefcases in hand, wearing white coverall-type uniforms, hard (safety) hats, and bright-colored scarves. The color of the scarf indicates the wearer's squadron. At the start of the day's duty, the special firing-lock keys and the critical code envelopes are ceremoniously tucked inside these scarves. The two crew members also pack .38-caliber revolvers—not for protection against intruders (who couldn't possibly gain access to the capsule) but for protection against each other. In fictional portrayals there must be at least one big scene in which a claustrophobic officer runs amok. The missilemen of the 341st are highly amused by this standard literary gambit. Nevertheless, the regulations don't overlook the possibility.

The missilemen are not only volunteers but are hand-picked on the basis of their maturity of judgment, stability of character, and "positive motivation to the mission." They all hold B.S. degrees and, as a regular part of the program, are assigned several hours a week to study and work for a master's degree in aerospace engineering. During their hours in the capsule, they are fully occupied in monitoring the status of the missiles under their command. They watch lights and listen to signals that continuously report on temperatures, pressures, and equipment readiness in the silos. If a fault is indicated, they simply press a particular button and a tape-recorded voice, governed by a computer, tells them what is amiss. They also practice alerts from time to time, but unlike the crewmen who handle the liquid-fueled Atlas and Titan I missiles that are elevated into firing position, Minutemen can never "exercise the hardware." There is just one movement in a Minuteman: its launching. The first-stage rocket fires the bird directly from the bottom of the silo and, simultaneously, the concrete lid is blasted off the top.

All of which, naturally, makes the "positive-control" precautions excruciatingly important. The sequence begins with the President's order to SAC headquarters at Omaha (or perhaps to an airborne top-command post), where two or more high-ranking officers must agree that the firing order from the White House is legitimate. They send a coded message to the Minuteman command capsule by teletype, telephone, and short-wave radio. At this moment a special alarm will sound in each of the control capsules. The outer doors will be securely bolted, and groups of code letters will be read over the voice circuit to the commanders. The commander and his deputy will decode the order separately from their red-bound code books. If both of them agree the order is to fire, they will arm their ten missiles and, then, simultaneously insert their keys in the firing locks of their respective consoles to trigger the missiles.

The commanders of the fourteen other capsules, meanwhile, have been acting under the same command instructions. At least one of the other capsule teams must reach the same conclusion as to the meaning of the orders and activate its firing keys or the first team's firing sequence will not be completed.

For the enlisted personnel at the control centers—the cooks and security guards—there are necessarily many hours of inactivity. Commercial TV helps allay the boredom.

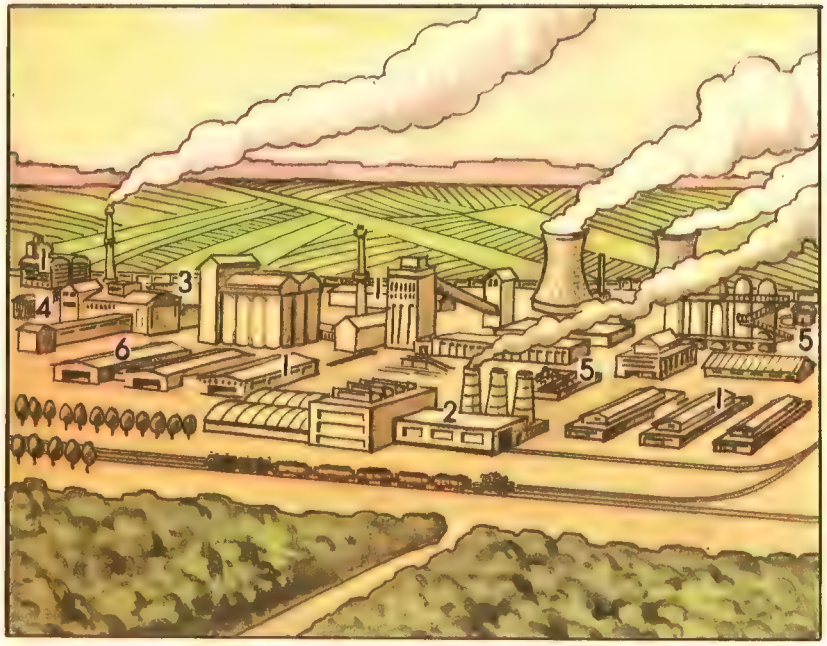
ЗАДАЧИ ГРАЖДАНСКОЙ ОБОРОНЫ

ГРАЖДАНСКАЯ ОБОРОНА СССР ЯВЛЯЕТСЯ СОСТАВНОЙ ЧАСТЬЮ СИСТЕМЫ ОБЩЕГОСУДАРСТВЕННЫХ ОБОРОННЫХ МЕРОПРИЯТИЙ, ОСУЩЕСТВЛЯЕМЫХ В МИРНОЕ И ВОЕННОЕ ВРЕМЯ В ЦЕЛЯХ ЗАЩИТЫ НАСЕЛЕНИЯ И НАРОДНОГО ХОЗЯЙСТВА СТРАНЫ ОТ ОРУЖИЯ МАССОВОГО ПОРАЖЕНИЯ И ДРУГИХ СРЕДСТВ НАПАДЕНИЯ ПРОТИВНИКА, А ТАКЖЕ ДЛЯ ПРОВЕДЕНИЯ СПАСАТЕЛЬНЫХ И НЕОТЛОЖНЫХ АВАРИЙНО-ВОССТАНОВИТЕЛЬНЫХ РАБОТ В ОЧАГАХ ПОРАЖЕНИЯ, ЗОНАХ КАТАСТРОФИЧЕСКОГО ЗАТОПЛЕНИЯ И ПРИ СТИХИЙНЫХ БЕДСТВИЯХ

ГЛАВНАЯ ЗАДАЧА ГРАЖДАНСКОЙ ОБОРОНЫ — ЗАЩИТА НАСЕЛЕНИЯ ОТ ОРУЖИЯ МАССОВОГО ПОРАЖЕНИЯ

ЗАЩИТА НАСЕЛЕНИЯ ОТ ОРУЖИЯ МАССОВОГО ПОРАЖЕНИЯ И ДРУГИХ СРЕДСТВ НАПАДЕНИЯ ПРОТИВНИКА РЕШАЕТСЯ:

накоплением фонда защитных сооружений для укрытия населения; обеспечением населения средствами индивидуальной защиты; эвакуацией населения из крупных городов и прилегающих к ним населенных пунктов



ПОВЫШЕНИЕ УСТОЙЧИВОСТИ РАБОТЫ ОБЪЕКТОВ НАРОДНОГО ХОЗЯЙСТВА В УСЛОВИЯХ ВОЕННОГО ВРЕМЕНИ ДОСТИГАЕТСЯ:

защитой рабочих и служащих от оружия массового поражения; устойчивостью управления гражданской обороной объектов; защитой ценного и уникального оборудования; устойчивостью снабжения электроэнергией, газом, водой; выполнением других мероприятий с учетом специфики производства

1. Защитные сооружения 2. Автономный источник энергоснабжения (тепловая электростанция) 3. Бассейн для воды. 4. Пульт управления 5. Запасы топлива 6. Запасы сырья

ПРОВЕДЕНИЕ СПАСАТЕЛЬНЫХ И НЕОТЛОЖНЫХ АВАРИЙНО-ВОССТАНОВИТЕЛЬНЫХ РАБОТ В ОЧАГЕ ПОРАЖЕНИЯ ВКЛЮЧАЕТ:

разведку очагов поражения; розыск и спасение пострадавшего населения, оказание необходимой помощи; борьбу с пожарами, локализацию и ликвидацию аварий на объектах; санитарную обработку людей; обеззараживание территории, сооружений, техники, продовольствия, одежды

СВЕТОВОЕ ИЗЛУЧЕНИЕ – ЭТО ПОТОК СВЕТОВЫХ ЛУЧЕЙ, ИСХОДЯЩИХ ИЗ ОБЛАСТИ ОГНЕННОГО ШАРА (ПОЛУСФЕРЫ)

Воздействие светового излучения на человека и различные объекты в зависимости от их удаления
1 Мт
Возгорание деревянных зданий до 15 км
Возникновение очагов пожаров или возгорание автотранспорта до 16 км
Возгорание растительности до 17 км
Поражение зрения у человека и ожоги открытых участков тела до 19 км

ОТ ВЕЛИЧИНЫ СВЕТОВОГО ИМПУЛЬСА ЗАВИСИТ СТЕПЕНЬ ПОЛУЧЕННОГО ОЖОГА

Ожог первой степени – 100–200 кДж/м² (2–4 кал/см²)
Ожог второй степени – 200–400 кДж/м² (5–9 кал/см²)
Ожог третьей степени – 400–600 кДж/м² (10–15 кал/см²)

Поражающее действие светового излучения определяется величиной светового импульса, т. е. количеством тепловой энергии в джоулях (калориях), падающей на 1 м² поверхности, перпендикулярной направлению распространения световых лучей за все время излучения

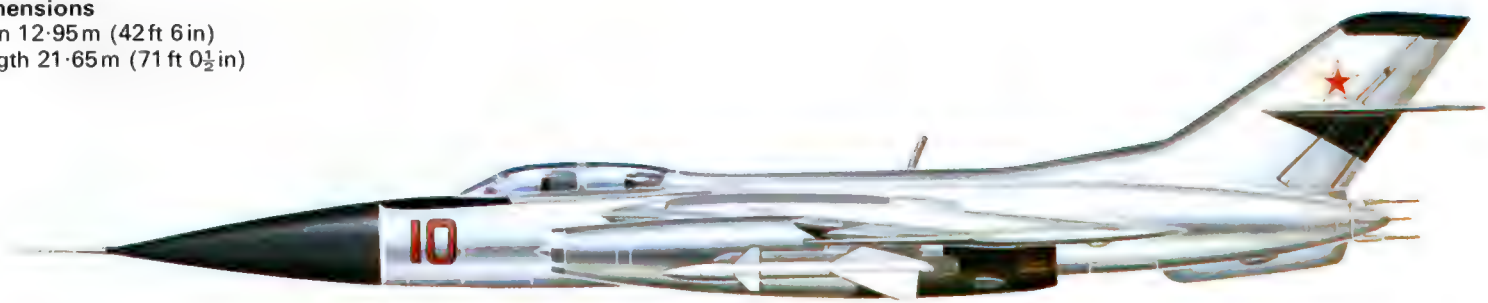
Световые лучи распространяются со скоростью света, но действуют всего лишь 8–15 с, т. е. пока не исчезнет огненный шар

У людей световое излучение может вызвать ожоги незащищенных участков тела, у тех, кто смотрел на светящуюся область, возможны временное ослепление и ожоги глаз

Для защиты от воздействия светового излучения используют защитные сооружения и местные предметы, создающие тень

Yakovlev Yak-28P of the Soviet Air Force

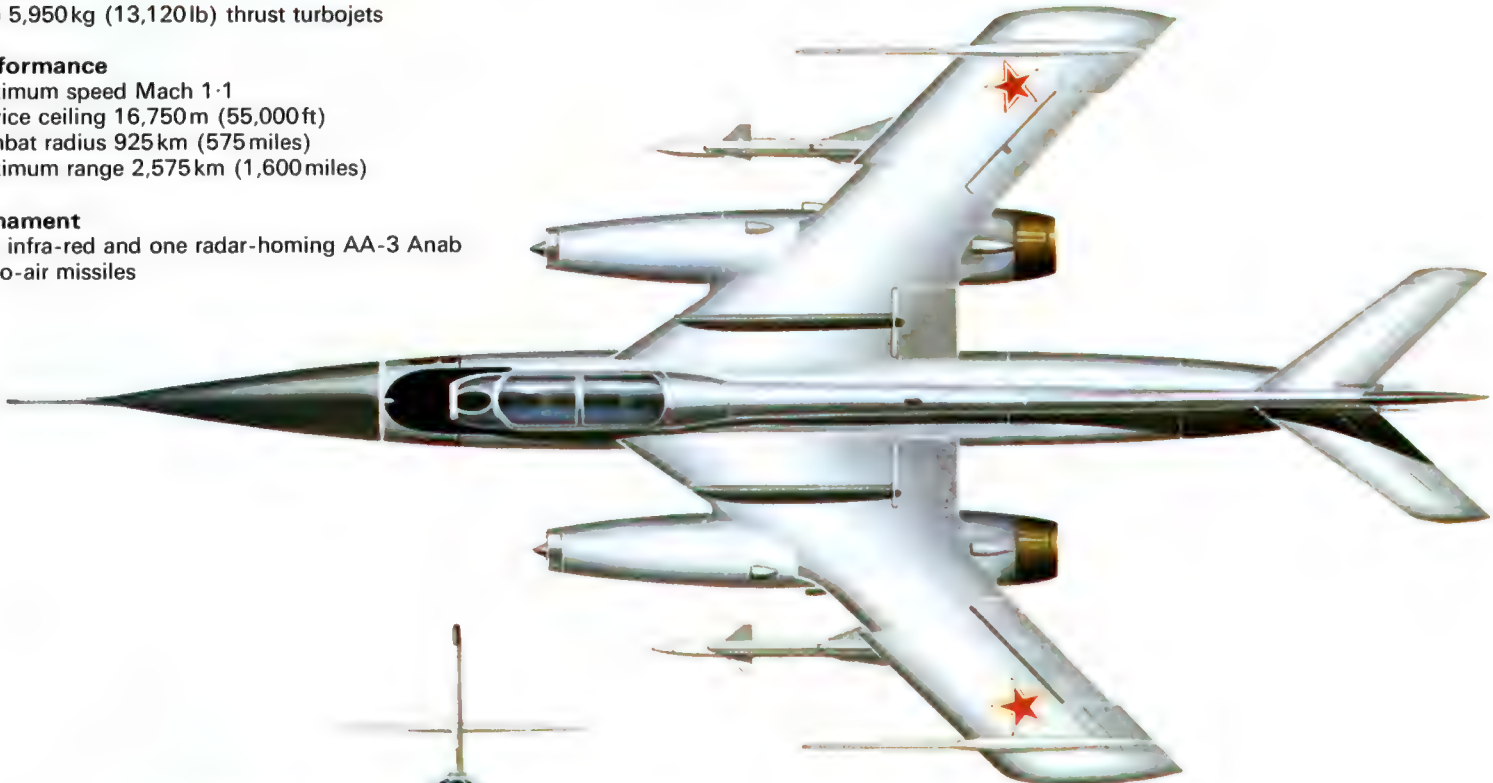
Dimensions
Span 12·95 m (42 ft 6 in)
Length 21·65 m (71 ft 0½ in)



Engines
Two 5,950 kg (13,120 lb) thrust turbojets

Performance
Maximum speed Mach 1·1
Service ceiling 16,750 m (55,000 ft)
Combat radius 925 km (575 miles)
Maximum range 2,575 km (1,600 miles)

Armament
One infra-red and one radar-homing AA-3 Anab air-to-air missiles



XR

Marshal R. Y. Malinovsky: "They would do well there to ponder the vulnerability of their own shores."

To hurl missiles at our cities, Russian subs would come under the Arctic and Pacific Oceans and through Denmark Strait. Launching sites would be off Newfoundland, Labrador and Alaska—north of our DEW line—and off all three U. S. coasts. Soviet trawler fleets now sit at two possible sites.

XR

continued

POPULAR SCIENCE

FEBRUARY • 35¢ Monthly

U. S. Army Builds City Under Ice

PAGE 86

Driving Test – 10,000 Miles in a Ford Falcon

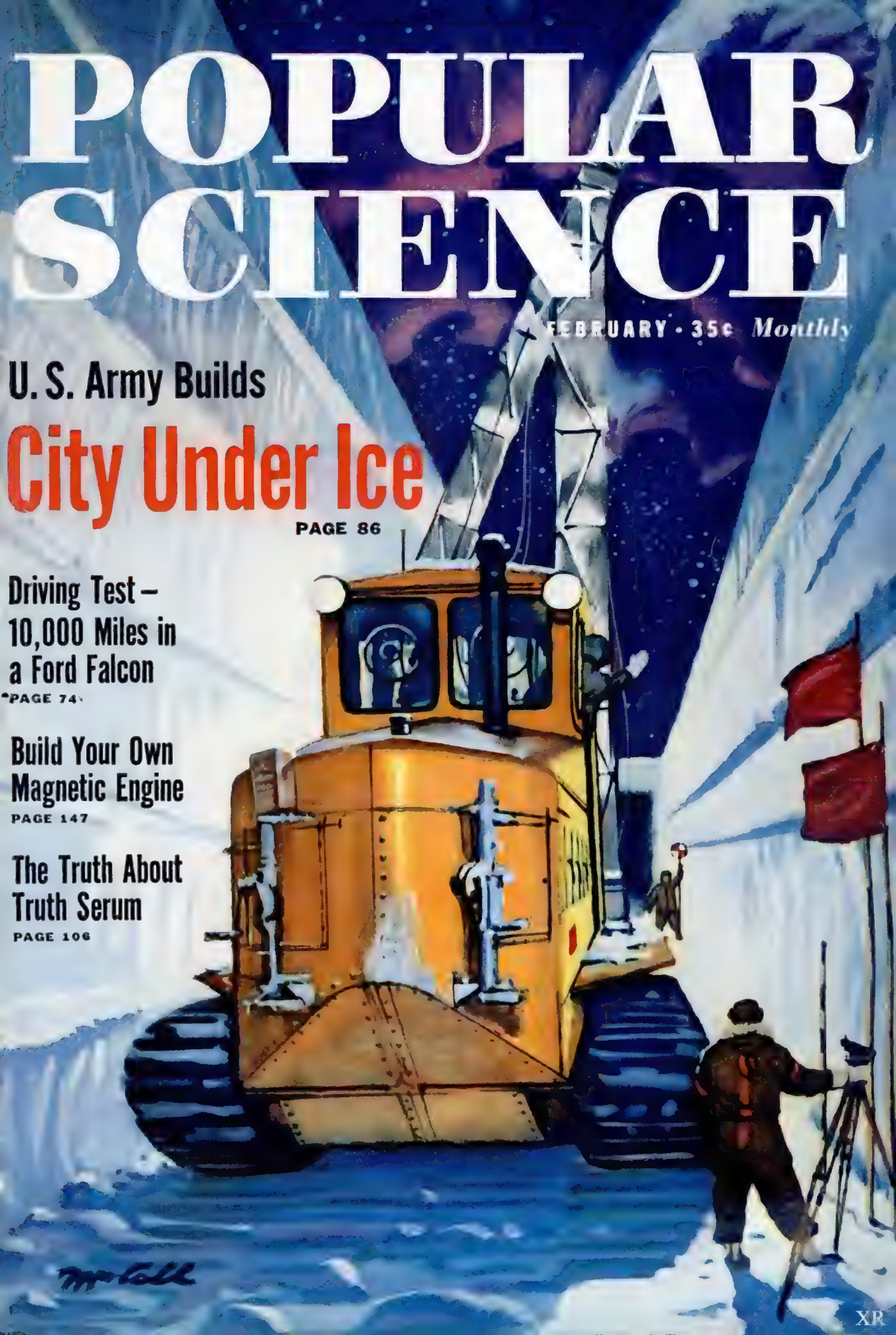
PAGE 74

Build Your Own Magnetic Engine

PAGE 147

The Truth About Truth Serum

PAGE 106

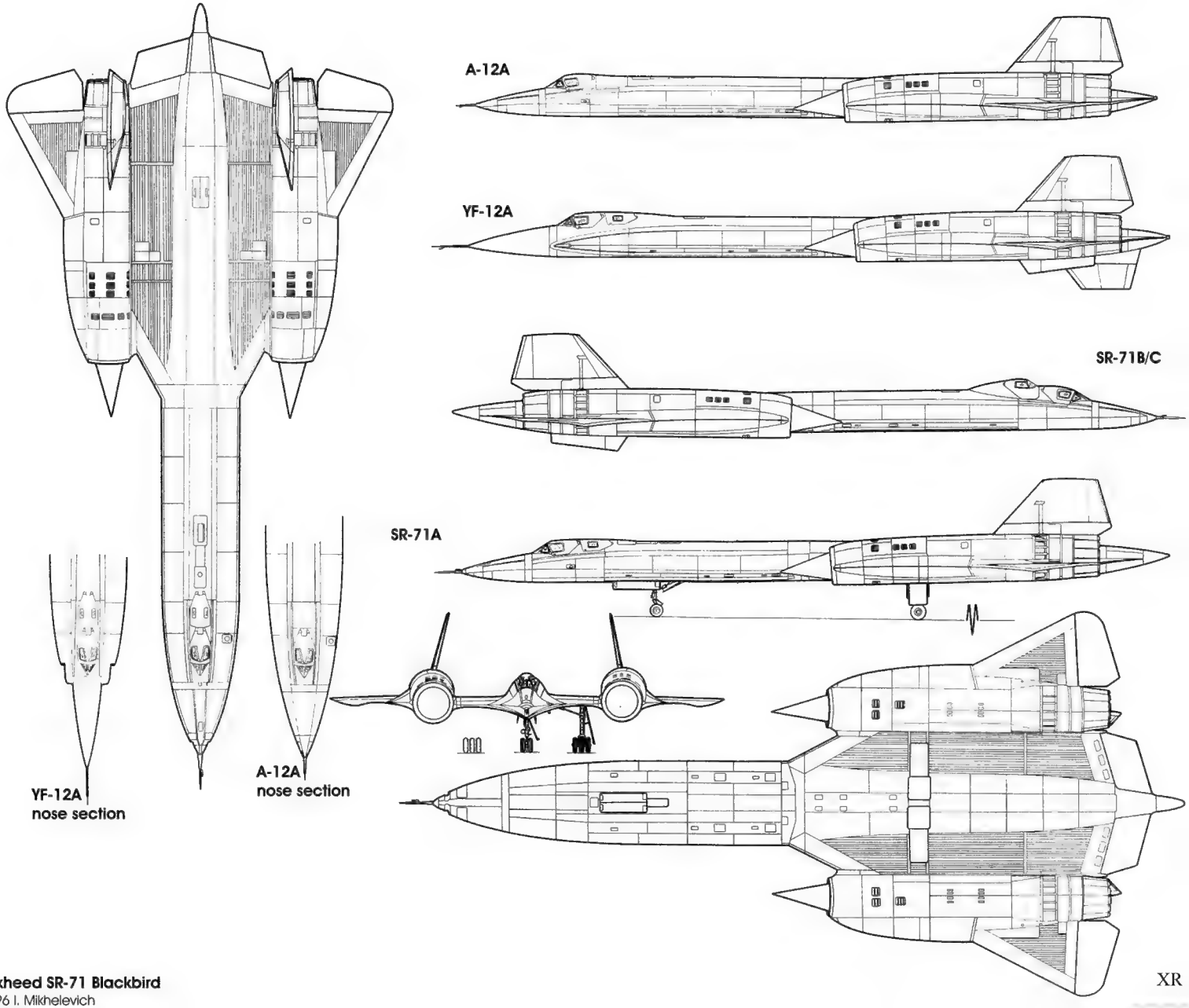


XR

NO LUKE ZONE
TWO MAN POLICY
MANDATORY

XR

AIM-47A USAF



Lockheed SR-71 Blackbird

©1996 I. Mikhelevich

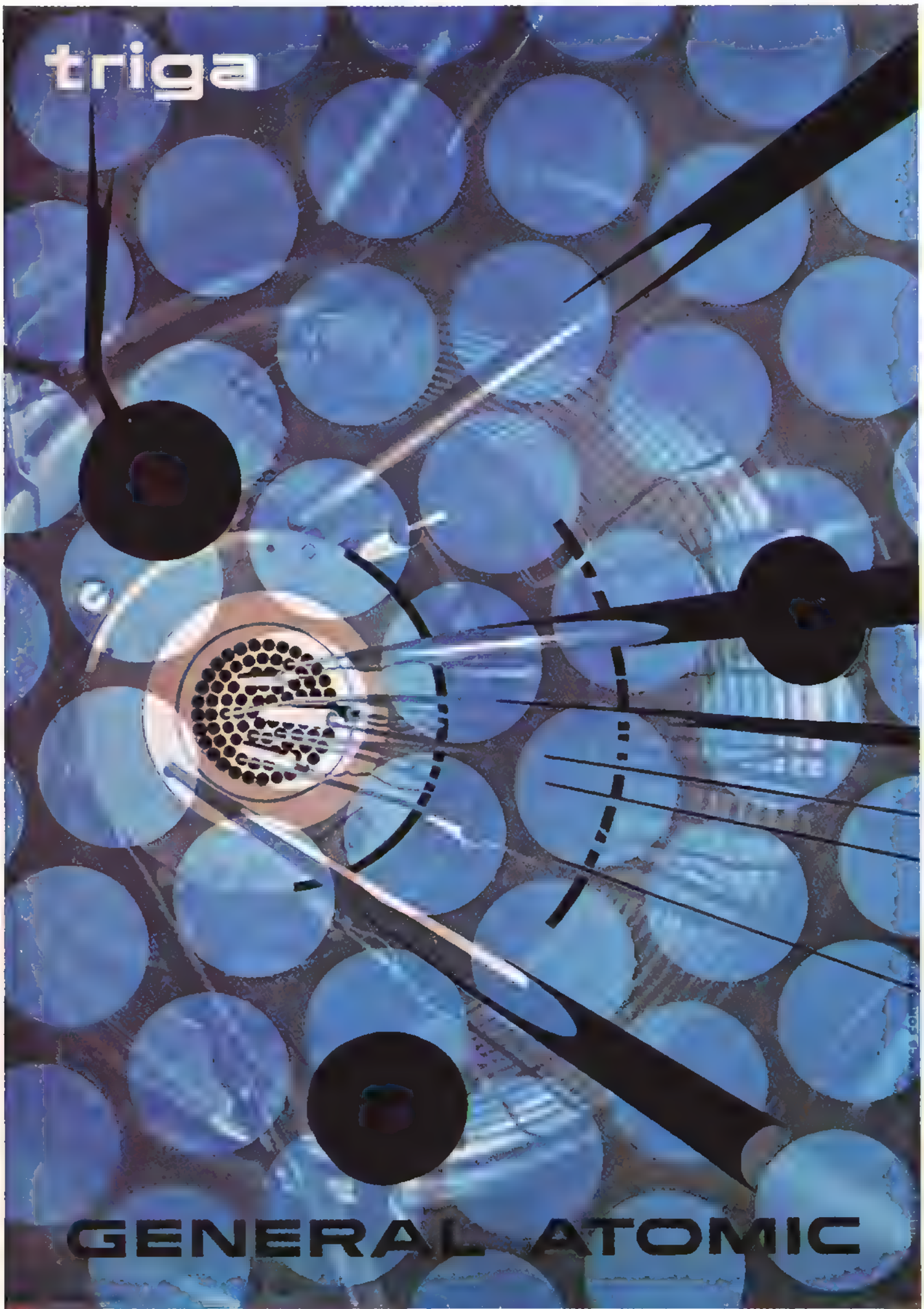
XR

A FULL SCALE
FAMILY
FALLOUT SHELTER
HOME PREPAREDNESS WEEK
JUNE 5-11
Towson Plaza
FALLOUT SHELTER
Constructed
Free!

XR

Exploring the universe series. Triga–General atomics poster. One of a series of posters displayed during the Second International Conference on the peaceful uses of Atomic Energy in Geneva, September 1958. Triga is an inherently safe training research, isotope-production reactor designed and manufactured by the General Atomic Division of General Dynamics Corporation.

1



XR

231
255
165
256
92
57
69
103
125
34
77
14
10
9
12
8
8
2
7
13
8
10
3
4
3
4
34
3
4
3

525-1 AFP

LEGISLATION AND REGULATION - F.C.C. - Application for Radio Station license in the Maritime Mobile Service for Marriott Hill, Md. and Oak Grove, Va.

This Copy For
(See page 2)

Washington, OCT 1 1971

E-060-4

Mr Beatty Rec't

Mr. D. E. Felker
Project Coordination Engineer
New York

Mobile radio service is presently provided for two Presidential yachts and a yacht for the Chief of Naval Operations (CNO) on the Potomac River. Three circuits are provided via a three channel base station located at Pononkey, Maryland (see our letter of September 9, 1971). Two circuits are dedicated to the Presidential yacht and its support vessel. The third circuit serves the yacht for the CNO. In the past, this base station provided adequate coverage for the customer needs. The Navy has now elected to increase coverage down the Potomac River to the Chesapeake Bay and up the Bay to the Naval Academy at Annapolis, Maryland for the two Presidential yachts. There are no plans at present to extend coverage for the CNO vessel.

In response to a customer service inquiry, a survey was conducted by the Eastern Area-Radio Engineer. His findings indicate additional base stations at Marriott Hill, Maryland and Oak Grove, Virginia will satisfy the customer needs. As a result the Navy has issued orders for the additional base stations to provide the extended coverage on two of the three channels.

Service has been requested for March 1, 1972. Installation of equipment and antennas is scheduled to begin January 15, 1972. Please arrange to file the attached applications with the Commission in time to assure a grant by the installation date.

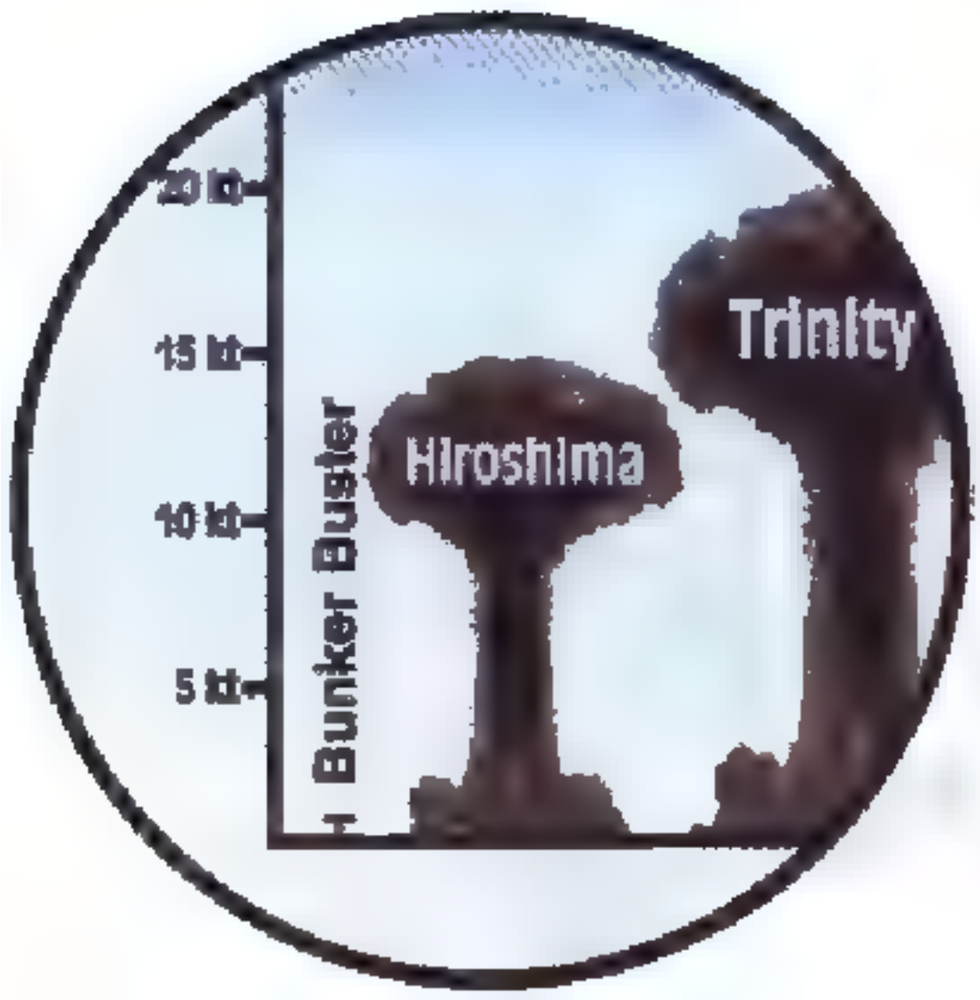
As the base stations will provide service to the U.S. Government using Government frequencies, the customer has requested that this filing be excluded from Public Notice. (see Exhibit #2)

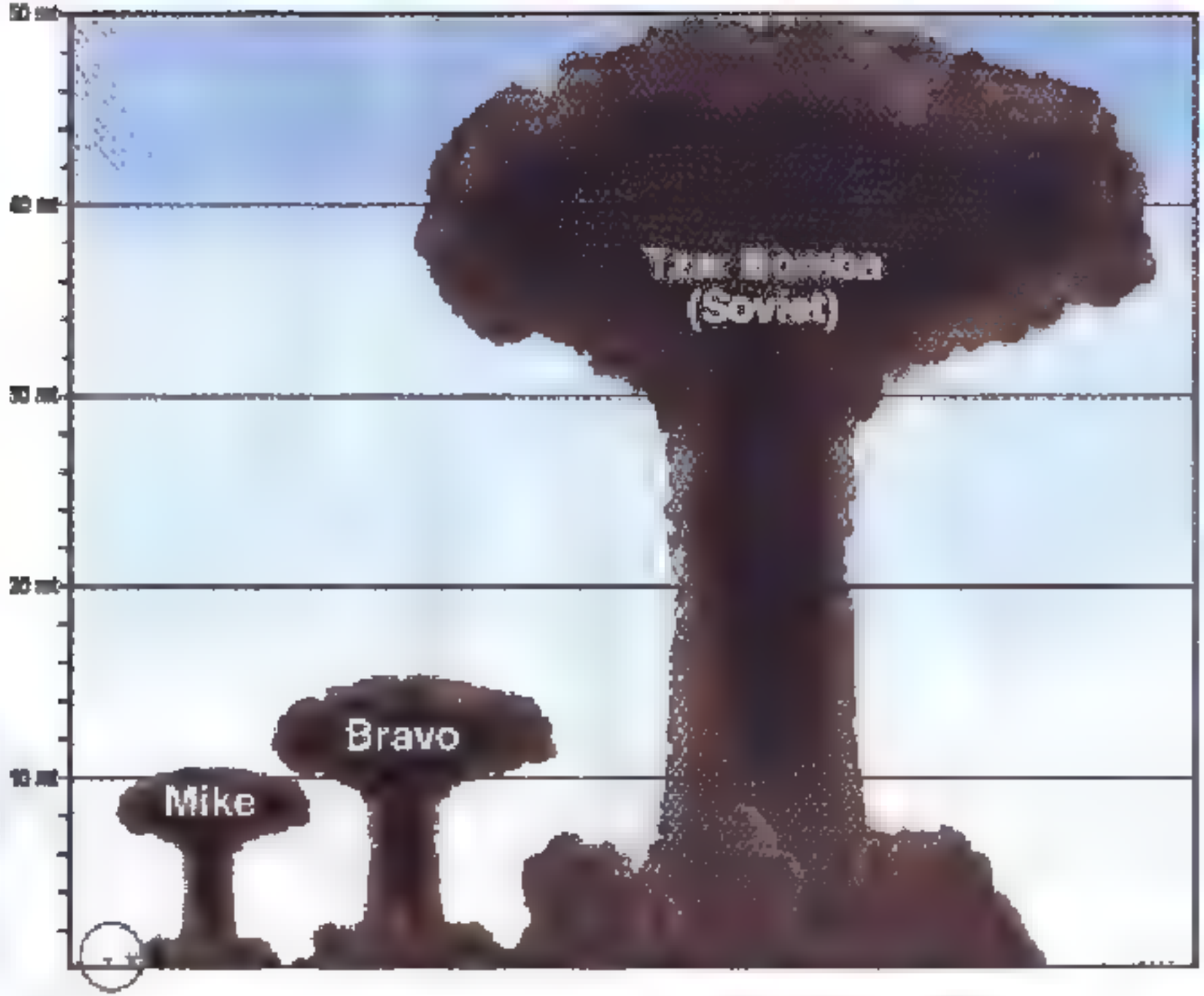
Should you have any questions related to this, please call Mr. H. C. Morgan on 202-466-3575.

(SGD) C. F. USHER, JR.

C. F. Usher, Jr.
Facility Projects Engineer

HCM:VB
Attachments


20 kt
15 kt
10 kt
5 kt
Bunker Buster
Hiroshima
Trinity


Bravo
Mike

They "test-fly" rockets for pennies —to save the taxpayer Millions

One way to make America stronger is to give our Armed Forces more and better weapons—built without wasting defense dollars. An example is seen in our vital *guided missiles program.*

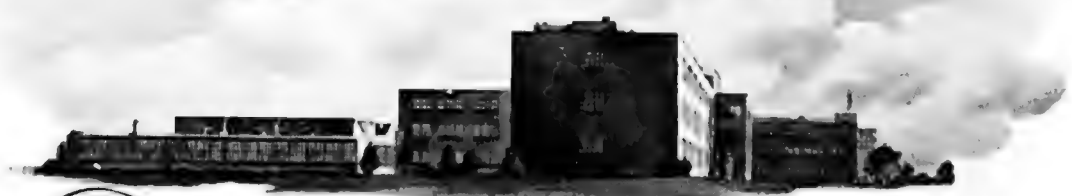
Using an electronic calculator—an analogue computer developed by RCA Laboratories for the U. S. Navy—the designs of guided missiles can now be tested in the drawing board stage. Information representing the rocket's design is fed into RCA's calculator. Other information represents flight conditions, and the two are then combined to show how the rocket performs . . . at any split second.

Millions of defense dollars—thousands of hours—are saved by these mathematical "test-flights." And RCA's calculator will test any man-made device that flies or swims . . . planes, ships, shells, rockets, submarines.

* * *

See the latest in radio, television, and electronics at RCA Exhibition Hall, 36 W. 49th St., N. Y. Admission is free. Radio Corporation of America, RCA Building, Radio City, N. Y. 20.

New electronic computer at RCA Laboratories "test-flies" rockets before they are built.



RADIO CORPORATION of AMERICA

World Leader in Radio — First in Television

XR

FLIGHT

and

AIRCRAFT ENGINEER

OFFICIAL ORGAN OF THE ROYAL AERO CLUB

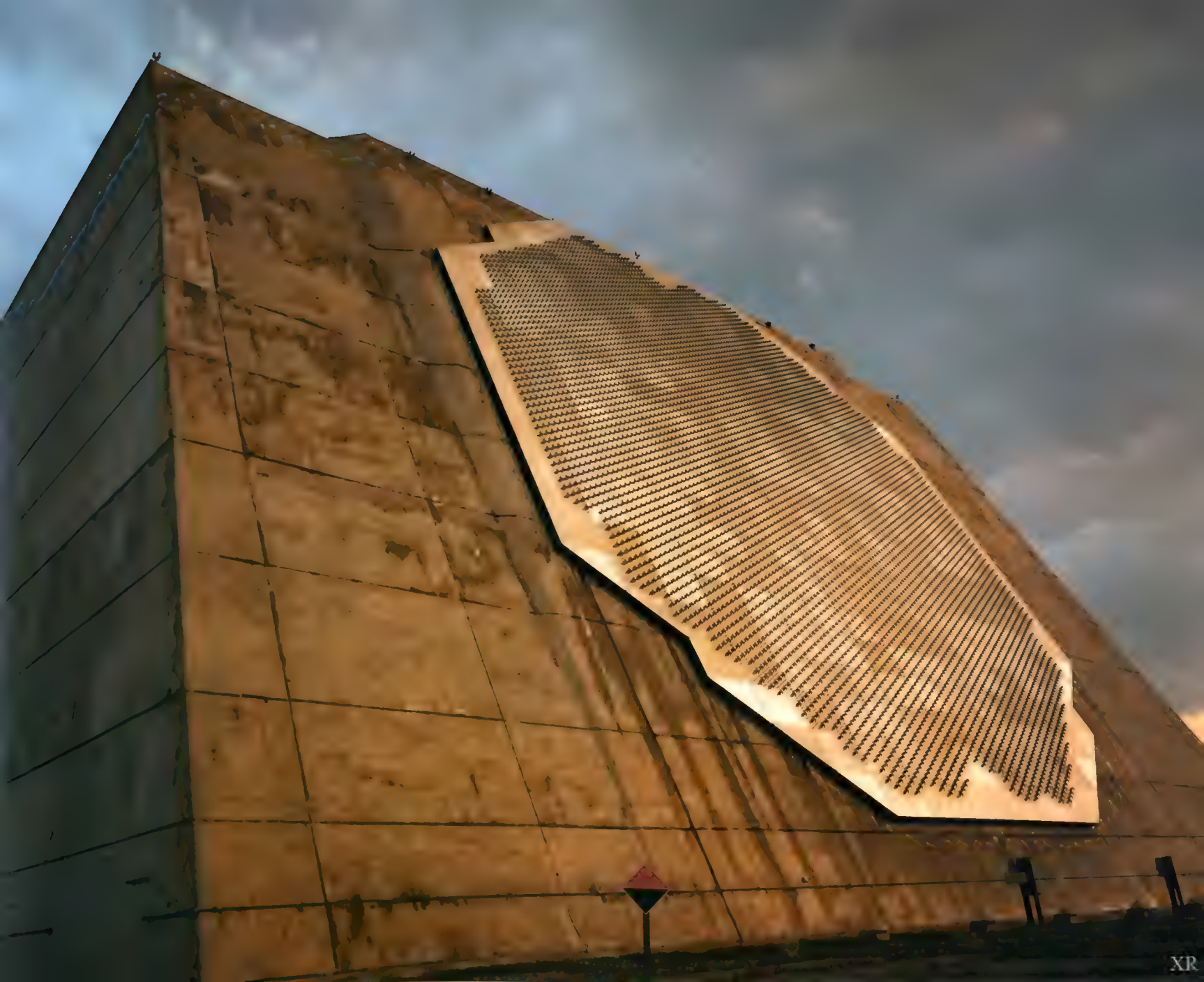
With increased range and armament the Gloster Meteor P.V. is the latest development of the versatile Meteor, standard interceptor fighter of the R.A.F. and the Air Forces of Holland, Belgium and Denmark and now in service with the Royal Australian Air Force.

GLOSTER METEOR

Tactical ground attack Fighter

P.V.

XR

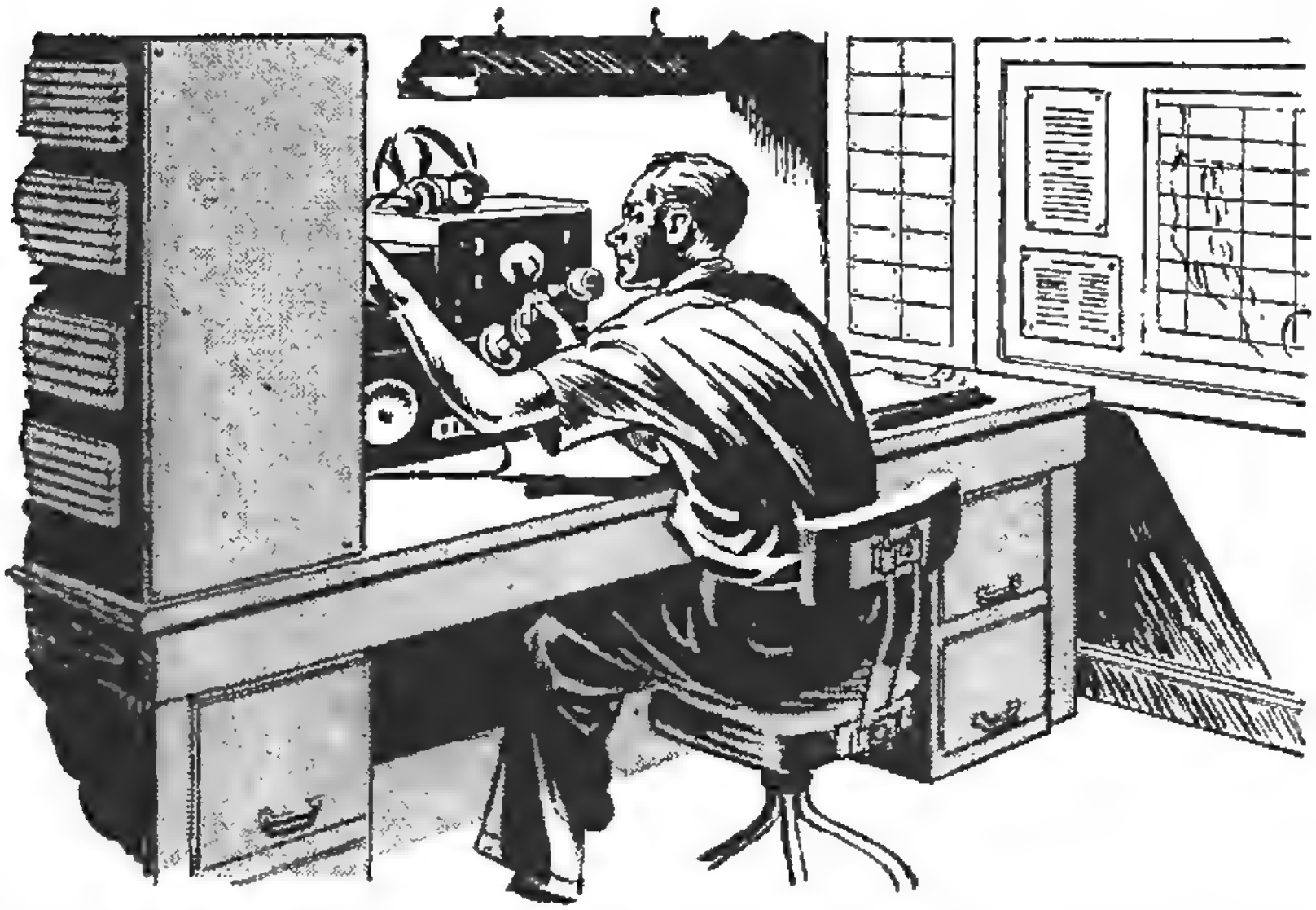


The heat will roughen polished granite, set fire to dark clothing and burn rubber tires a mile from the blast.

This radiant heat travels only in a straight line. Protection from it is afforded by almost any object. Clothing shields the body. The shadow of a tree trunk will be untouched by the heat. It is this phenomenon which produced the "profile burns" on buildings or human beings. It sears only where a surface is within line-of-sight from the explosion.

Burns from flash heat and the fires produced by the heat caused more than half the deaths and three-quarters the injuries at Hiroshima and Nagasaki. There were no fire departments after the explosions. Water pressure in the city mains was

The shadow of a tree trunk will be untouched by the heat—



Radio engineers will keep communications open to the rest of the world—

If and when an A-bomb falls on your city, the water pressure must be kept up, the fire equipment must be mobilized, communication must be maintained—there are a myriad of important functions which must be kept going.

Right now, in many American cities, the public utilities have completed plans for what they will do in case of an A-bomb attack. Water companies know what valves to turn so precious water will not drain away through broken and twisted pipes. You, if you work for the water company, might already be assigned a valve to turn if the bomb should happen to fall in a particular area.

In all the public utilities there will be specific jobs to do to keep things running where possible, to provide substitutes where that isn't possible.

SINCE THE OUTBREAK of war in Korea, America has been working against time to build up its Air Power. Only our military leaders and Congress can decide how *much* Air Power we should have at any given time. Yet, as a leading manufacturer, we feel a responsibility to help you understand the vast complexity of modern aircraft . . . and why a "happy medium" level of production must be maintained in peace so that we can expand quickly to meet emergencies. Second-best Air Power is not enough in war. America's future security demands a long-range Air Power program in peace as well as in emergencies.

INTERCONTINENTAL CONVAIR B-36s, POWERED BY SIX PRATT & WHITNEY 3800 H.P. ENGINES AND FOUR JETS, CAN FLY FARTHER THAN ANY OTHER BOMBERS IN THE WORLD.

NINETY-TWO-TON MEDIUM BOMBERS, 600 M.P.H. BOEING B-47s, ARE JOINING U. S. AIR FORCE UNITS IN QUANTITY.

ALL-JET GIANT OF THE FUTURE . . . THE BOEING B-52, REQUIRED ABOUT 8 MILLION MAN-HOURS TO DESIGN.

FAST, LIGHT DOUGLAS RB-66s HAVE BEEN ORDERED BY THE U. S. AIR FORCE FOR RECONNAISSANCE MISSIONS.

XR

ADVENTURE FOR THE ATOMIC AGE!

FAWCETT COMICS!

HOPALONG CASSIDY

ROCKY LANE

BOB SWIFT, BOY SPORTSMAN

FUNNY ANIMALS

CAPTAIN MARVEL ADVENTURES

YOUNG EAGLE

MARVEL FAMILY

TOM MIX

KEN MAYNARD

ROD CAMERON

BOB COLT

BILL BOYD

MASTER COMICS

TEX RITTER

GABBY HAYES

SIX-GUN HEROES

NYOKA

WHIZ COMICS

CAPTAIN VIDEO

LASH LaRUE

DON WINSLOW

CAPTAIN MARVEL JR.

BOB STEELE

WESTERN HERO

MONTE HALE

10c ON NEWSSTANDS ACROSS THE NATION 10c

XR

AIR-TO-GROUND TV SYSTEM

Transmits Combat Pictures on FM

Airborne military television crams a self-contained transmitting station into a small reconnaissance plane, then flies this ever-moving station over unpredictable terrain. Taking these adverse conditions into account, Admiral developed an extremely compact television system which uses FM transmission for the picture. It is now in production for the U.S. Army Signal Corps. Even under difficult conditions, this equipment provides excellent definition.

The transmitting plane, flying at approximately 1,000 feet, would have a line-of-sight range of 25 or 30 miles. This would enable a battle commander aided by a panel of TV screens, each screen showing a different sector, to coordinate military operations over a wide area.

In addition, a mobile ground-to-ground TV system is under development. Inquire about Admiral's exceptional capabilities in the field of military electronics. Address inquiries to:

Admiral®

CORPORATION

Government Laboratories Division, Chicago 47

LOOK TO *Admiral* FOR

RESEARCH • DEVELOPMENT • PRODUCTION

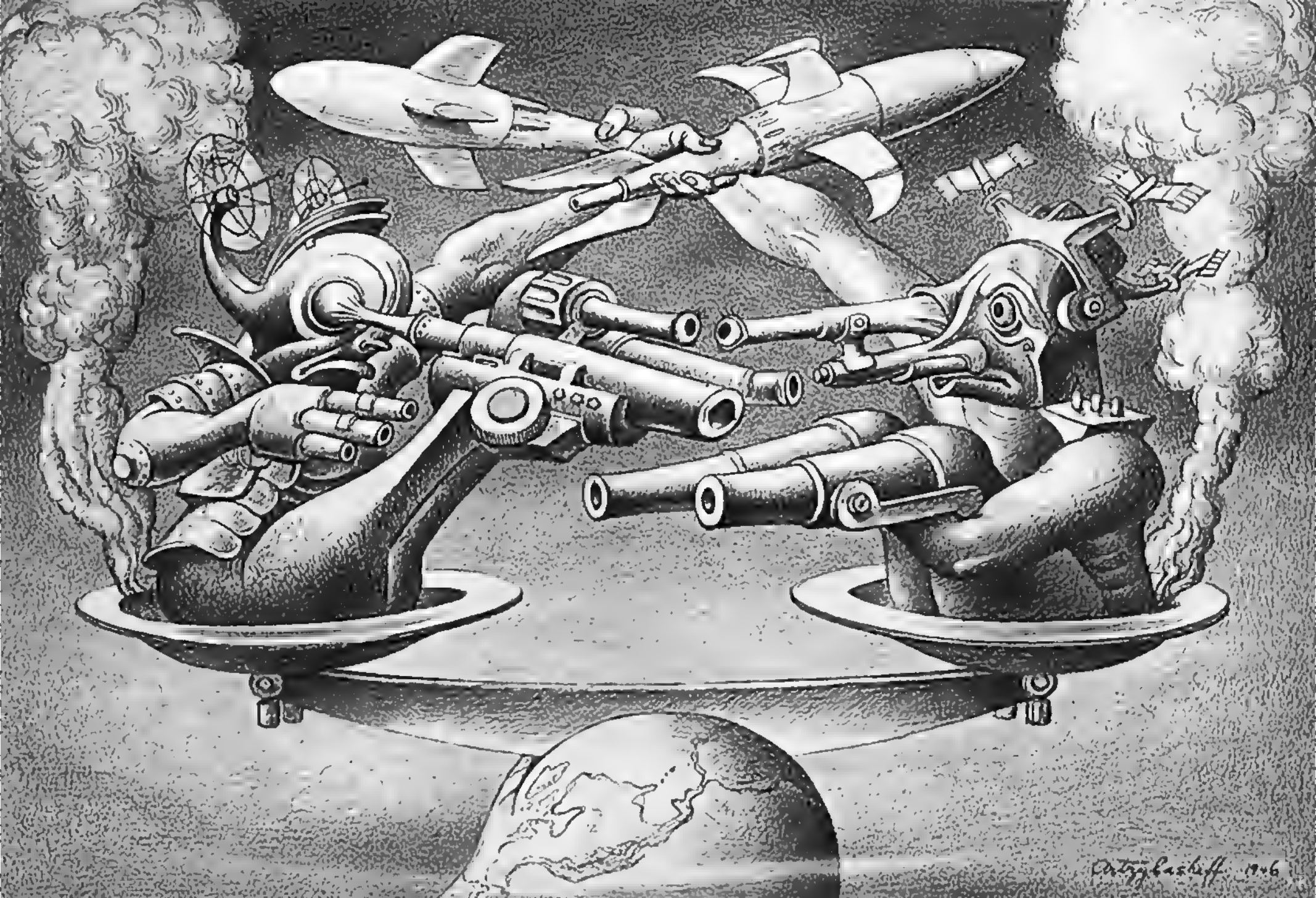
IN THE FIELDS OF:

COMMUNICATIONS UHF AND VHF • MILITARY TELEVISION
RADAR • RADAR BEACONS AND IFF • RADIAC
TELEMETERING • DISTANCE MEASURING
MISSILE GUIDANCE • CODERS AND DECODERS
CONSTANT DELAY LINES • TEST EQUIPMENT

Facilities Brochure describing Admiral plants, equipment and experience sent on request.

ENGINEERS: The wide scope of work in progress at Admiral creates challenging opportunities in the field of your choice. Write Director of Engineering and Research, Admiral Corporation, Chicago 47, Illinois.

Note: NEW COLOR SOUND FILM on Admiral Automation available for showing to technical or business groups. Address Public Relations Director, Admiral Corporation, Chicago 47.


Ortzy Kackoff 1946

AN AVON PUBLICATION

FIGHTING JETS OVER KOREA!

Captain Steve Savage

BATTLES the RED MYSTERY JET

10c
No.8

EVERETT
RAYMOND
KINSTLER

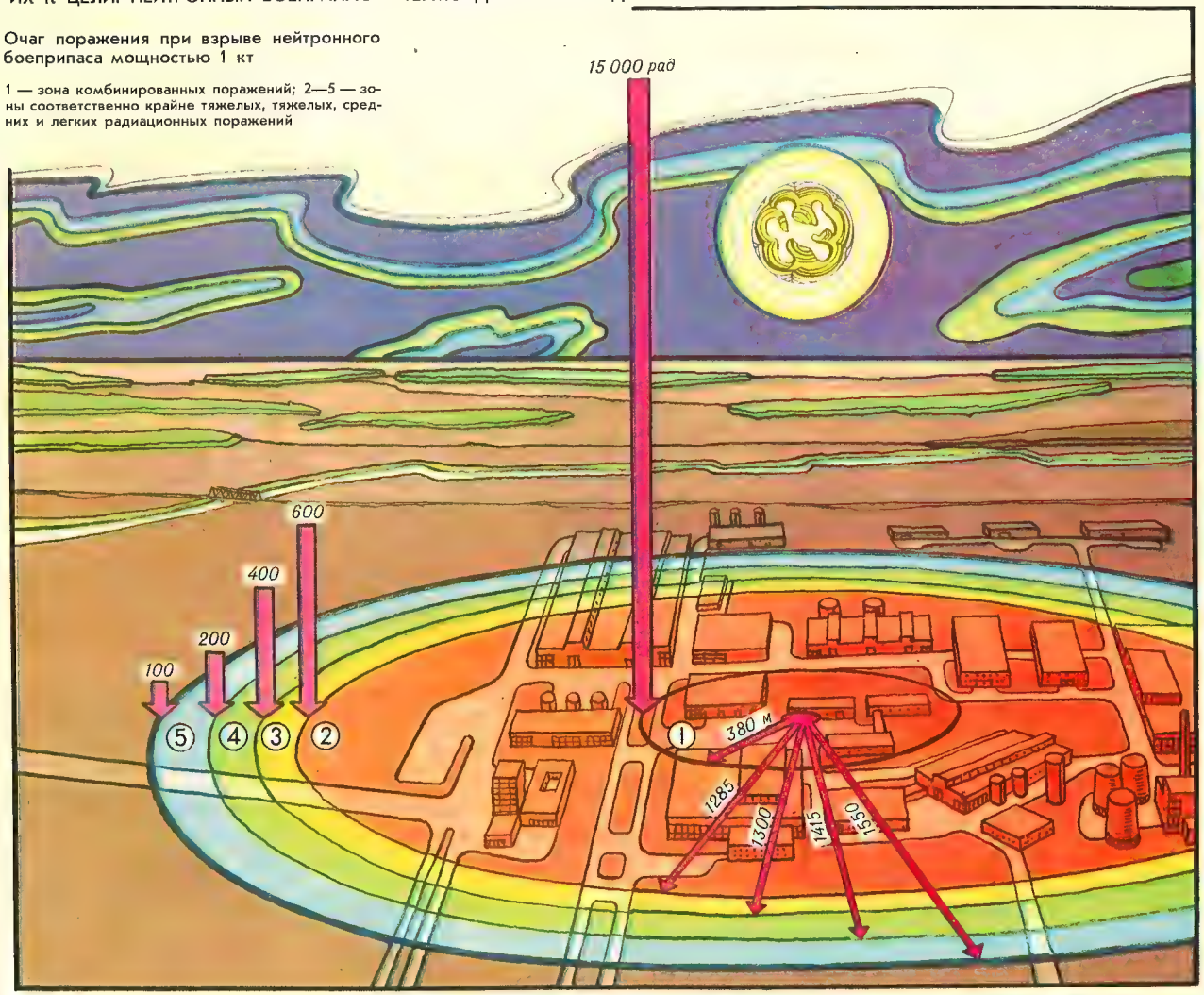
XR

НЕЙТРОННОЕ ОРУЖИЕ И ОСОБЕННОСТИ ЗАЩИТЫ ОТ НЕГО

НЕЙТРОННОЕ ОРУЖИЕ — ЭТО НЕЙТРОННЫЕ БОЕПРИПАСЫ И СРЕДСТВА ДОСТАВКИ ИХ К ЦЕЛИ. НЕЙТРОННЫЙ БОЕПРИПАС — ТЕРМОЯДЕРНЫЙ ЗАРЯД СВЕРХМАЛОЙ МОЩНОСТИ (0,5—2,0 кт), ДЕЙСТВИЕ ЕГО ОСНОВАНО НА РЕАКЦИИ СИНТЕЗА НУКЛИДОВ ВОДОРОДА — ДЕЙТЕРИЯ И ТРИТИЯ

Очаг поражения при взрыве нейтронного боеприпаса мощностью 1 кт

1 — зона комбинированных поражений; 2—5 — зоны соответственно крайне тяжелых, тяжелых, средних и легких радиационных поражений



РАСПРЕДЕЛЕНИЕ ЭНЕРГИИ ВЗРЫВА НЕЙТРОННОГО И ЯДЕРНОГО БОЕПРИПАСА

Поражающий фактор	Энергия боеприпаса, %	
	нейтронного	ядерного
Ударная волна	40	50
Световое излучение	30	35
Проникающая радиация	25	5
Радиоактивное заражение	5	10

ЗАЩИТНЫЕ СВОЙСТВА МАТЕРИАЛОВ

Экспозиционную дозу радиации ослабляют вдвое материалы толщиной

НЕОТЛОЖНЫЕ АВАРИЙНО-ВОССТАНОВИТЕЛЬНЫЕ РАБОТЫ В ОЧАГЕ ПОРАЖЕНИЯ

ЭТИ РАБОТЫ ПРОВОДЯТ С ЦЕЛЬЮ ОБЕСПЕЧЕНИЯ БЫСТРОГО СПАСЕНИЯ ЛЮДЕЙ И ПРЕДУПРЕЖДЕНИЯ ПОСЛЕДСТВИЙ АВАРИЙ И ПОВРЕЖДЕНИЙ

К НЕОТЛОЖНЫМ АВАРИЙНО-ВОССТАНОВИТЕЛЬНЫМ РАБОТАМ В ОЧАГЕ ПОРАЖЕНИЯ ОТНОСЯТСЯ:

Прокладка колонных путей и устройство проездов в завалах

Укрепление или обрушение конструкций, угрожающих обвалом

Ремонт и восстановление поврежденных защитных сооружений

Republic F-84 “Thunderjet”
1947-1964

Варианты Thunderjet

...вым вариантом самолета Thunderjet стал P-84B, построенный в количестве ...мевший проблемы с прочностью конструкции. Послуживший вначале в 14-й ...ной п... он был замечен на вариант P-84C (позднее обозначенный F-84C), от... модификацией ТРД J35 и рядом других доработок. Вариант F-84D получил еще бо... доработки по усилению конструкции, а на немного удлиненном F-84E вве... возможность установки реактивных стартовых ускорителей (JATO). Пос... ов с прямым крылом был F-84G, оснащенный форсированным двигателем, с... вки и усиленным фонарем кабины, а также имел возможность приме... (с помощью лазерной системы „ABS).

Кабина

Кабина самолета F-84G была удобной для пилотов. Уступая по ряду характеристик истребителю Sabre, F-84G был устойчивее в полете, даже на высоких скоростях, и мог нести более разнообразный набор вооружения

Вооружение

...был первым многоцелевым истребите... способным нести атомную бомбу. Тем не... сохранил возможность использовать ...вооружение, что было успешно продем... но в конце. В дополнение к шести п... ...м другое оружие, включая две 454-кг ... 32 неуправляемые ракеты калибра ... мешалось на узлах подвес...

Топливные баки

...на законцовках крыла были установлены топливные баки емкостью 870 л. Хотя F-84G разрабатывался для дозаправки в полете с помощью системы «летающая штанга», некоторые самолеты на Дальнем Востоке оснащались другим дозаправочным оборудованием под систему «шланг-конус». Оборудование размещалось в баке, расположенном на законцовке. Доработки пришлось провести, поскольку крупные самолеты-заправщики, оборудованные телескопической ...штангой, в зону боевых действий не входили.

Performance

Maximum speed: 622 mph (540 kn, 1,000 km/h,Mach .81)
Cruise speed: 475 mph (413 kn, 770 km/h)
Range: 1,000 mi (870 nmi, 1,600 km)combat
Ferry range: 2,000 mi (1,700 nmi, 3,200 km) with external tanks
Service ceiling: 40,500 ft (12,350 m)
Rate of climb: 3,765 ft/min (19.1 m/s)
Wing loading: 70 lb/ft² (342 kg/m²)
Thrust/weight: 0.31 lbf/lb

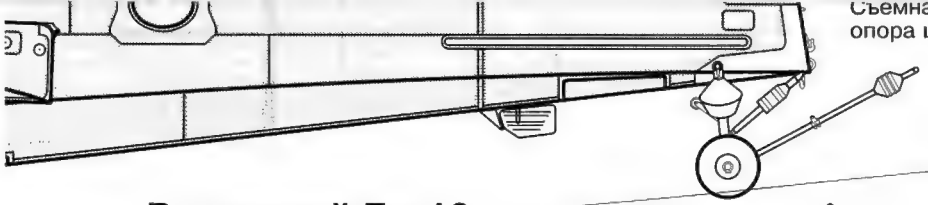
Armament

6 × .50 in (12.7 mm) M3 Browning machine guns, 300 rpg
Up to 4,450 lb (2,020 kg) of rockets and bombs, including 1 × Mark 7 nuclear bomb

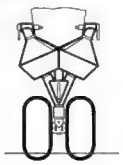
XR

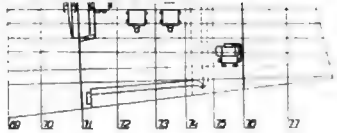
U.S. AIR FORCE
J-93

DANGER
RADIATION
100 MR/HR LINE

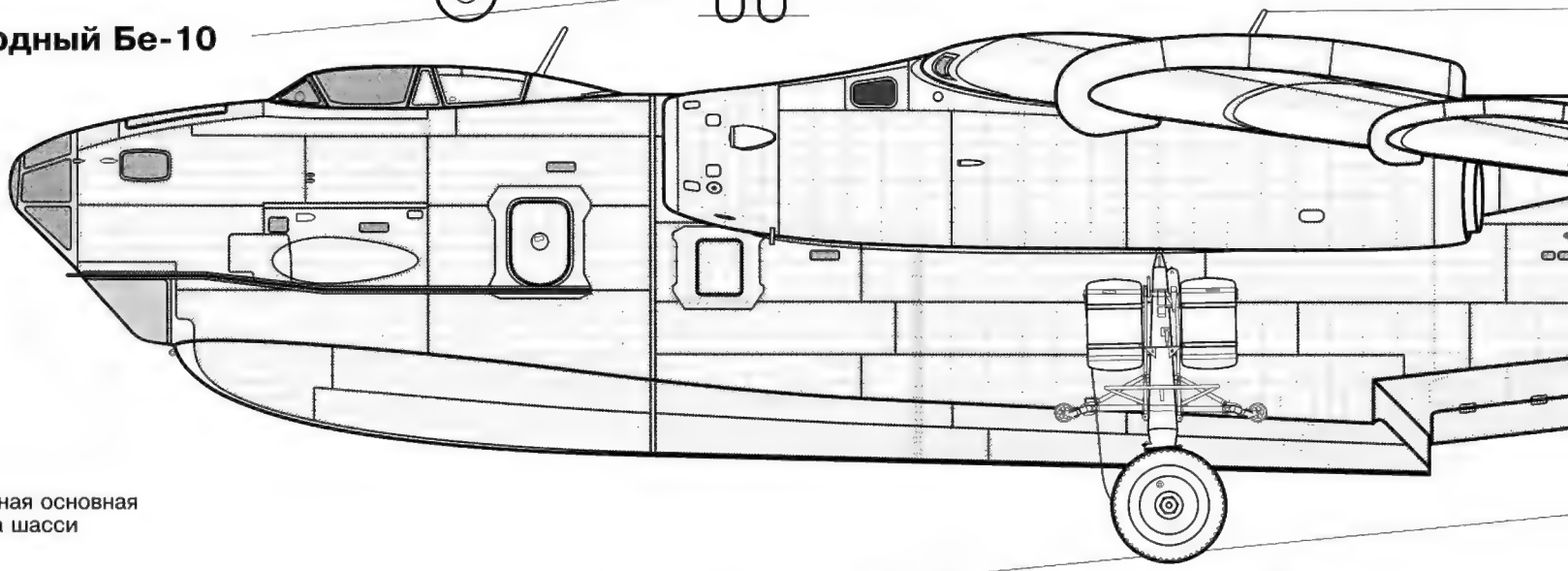


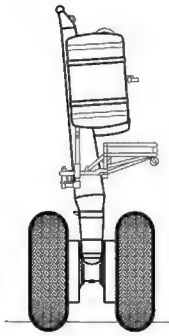
Съемная хвостовая опора шасси





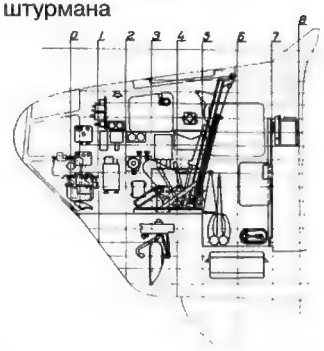
Рекордный Бе-10

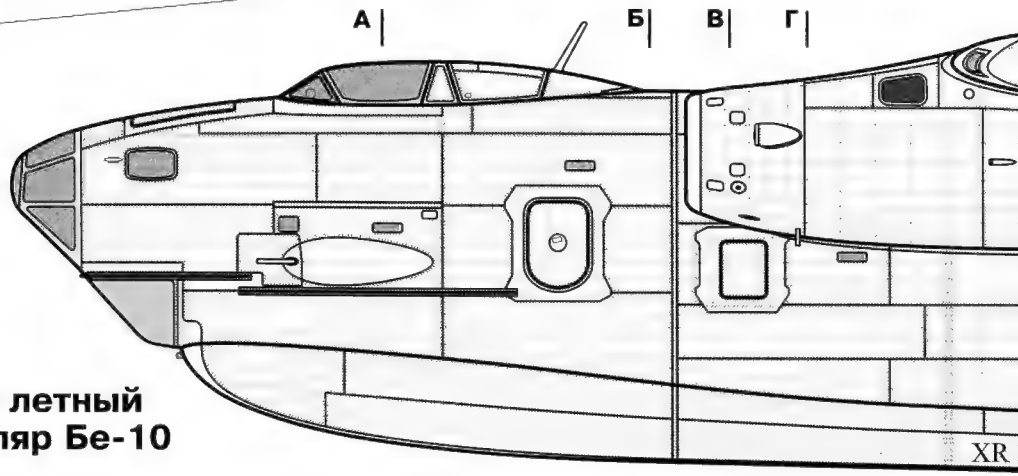




Съемная основная опора шасси

Компоновка кабины штурмана





Первый летный экземпляр Бе-10

"АиВ", №4'2000г.

0 5

XR

FIVE STEPS TO SAFETY

LEARN:

1. Warning signals and what they mean.
2. Your community plan for emergency action.
3. Protection from radioactive fallout.
4. First aid and home emergency preparedness.
5. Use of CONELRAD—640 or 1240—for official directions.

For sale by the Superintendent of Documents,
U. S. Government Printing Office,
Washington 25, D. C. - Price 10 cents

EXECUTIVE OFFICE
OF THE PRESIDENT

OFFICE OF CIVIL AND
DEFENSE MOBILIZATION

April 1958 L-18
(Reprinted August 1959)

* U. S. GOVERNMENT PRINTING OFFICE

facts about FALLOUT protection

XR

YOU CAN SELDOM FEEL IT

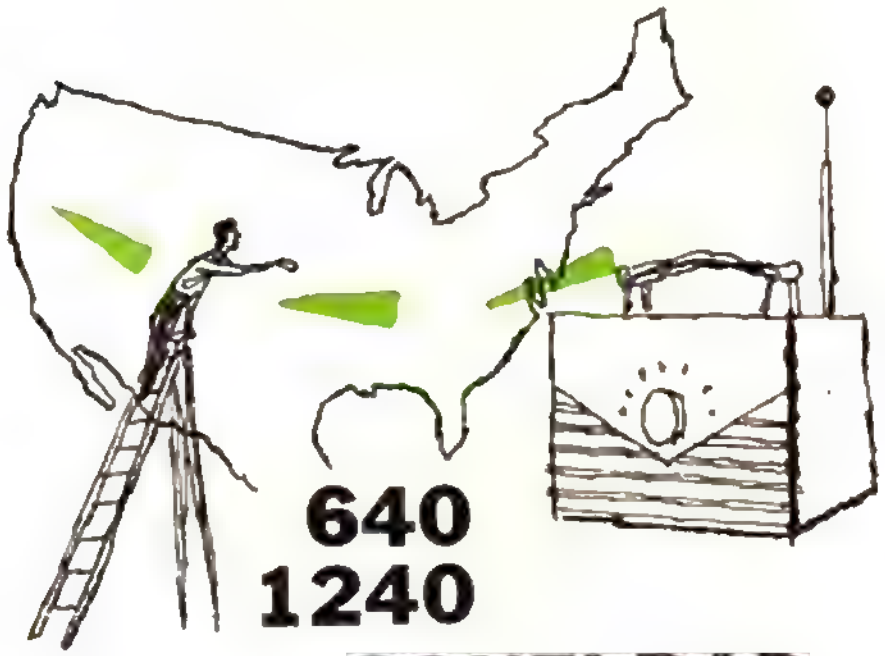
OFTEN YOU CAN'T EVEN SEE IT

But if you are exposed to much of it long enough, it can make you seriously ill even if the radioactive particles do not settle on you.

IT COULD KILL YOU!

A mass of material between you and the particles is needed for protection.

Weather and radiological experts will estimate the path and speed of fallout after an attack. They will tell you how much time you have to protect yourself. If you don't get the word, play it safe. Seek the best available shelter if there has been a nuclear attack.



CONELRAD

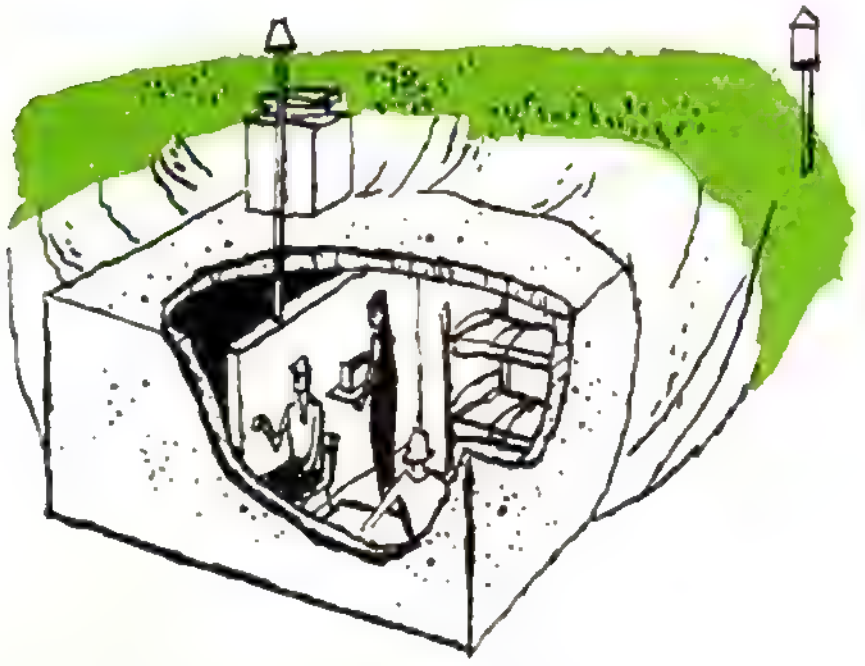
Your CONELRAD radio stations, at 640 or 1240 on your dial, will keep you informed.

Radiological monitors will measure the amount of fallout in your area. Local officials will tell you when the area is safe and when you may leave the protected area.

But the basic responsibility is yours. Listen for the instructions of your local officials. Follow them carefully.

XR

Wherever you are—at home or away—seek the best available protection and stay there as long as you can or until advised to come out.



The best protection is an underground shelter with at least three feet of earth or sand above it. Two feet of concrete will give the same protection. If the shelter has an adequate door and an air filter, it will give you almost complete protection.

An ordinary house without basement probably would cut the radiation in half, if you stay on the first floor near the center of the house.

Staying in a house basement will reduce your exposure to about 1/10 the outside exposure. If you can sandbag the basement windows, there will be a further reduction.

If you arrange a basement refuge, with a mass of material around and above you, as shown, you can reduce your exposure to about 1/100 of the outside exposure.

Large buildings—apartment or office buildings—give good protection. Their masonry or concrete construction generally makes it harder for radiation to get through. Basements, inside rooms, or corridors are safest.

Outdoors, a culvert that can be blocked off at the ends will furnish protection. A trench or ditch also will protect you if it can be covered quickly with three feet of earth or other heavy materials.

XR

REMEMBER

The more dense material you put between yourself and the fallout, the better protected you are. This can be earth, sand, or other material. In a pinch, it can be stacks of books, magazines, newspapers, or filing cabinets.

Fallout will sift into your house or shelter like dust. Stop up the doors and windows tightly.

If you think you have been in a fallout area, wash yourself and your clothes thoroughly. If you can't wash your clothes and dispose of the water, leave your clothes outside.

BE PREPARED

Determine which is the safest area in your home or place of business.

Decide what needs to be done to it to give you the best possible protection.

Then do as much of this as you can—
NOW.

OCDM booklet MP-15, *The Family Fallout Shelter*, which contains plans for five basic shelters, can be obtained free from your local civil defense office or from Box "Home Shelter," Battle Creek, Mich.

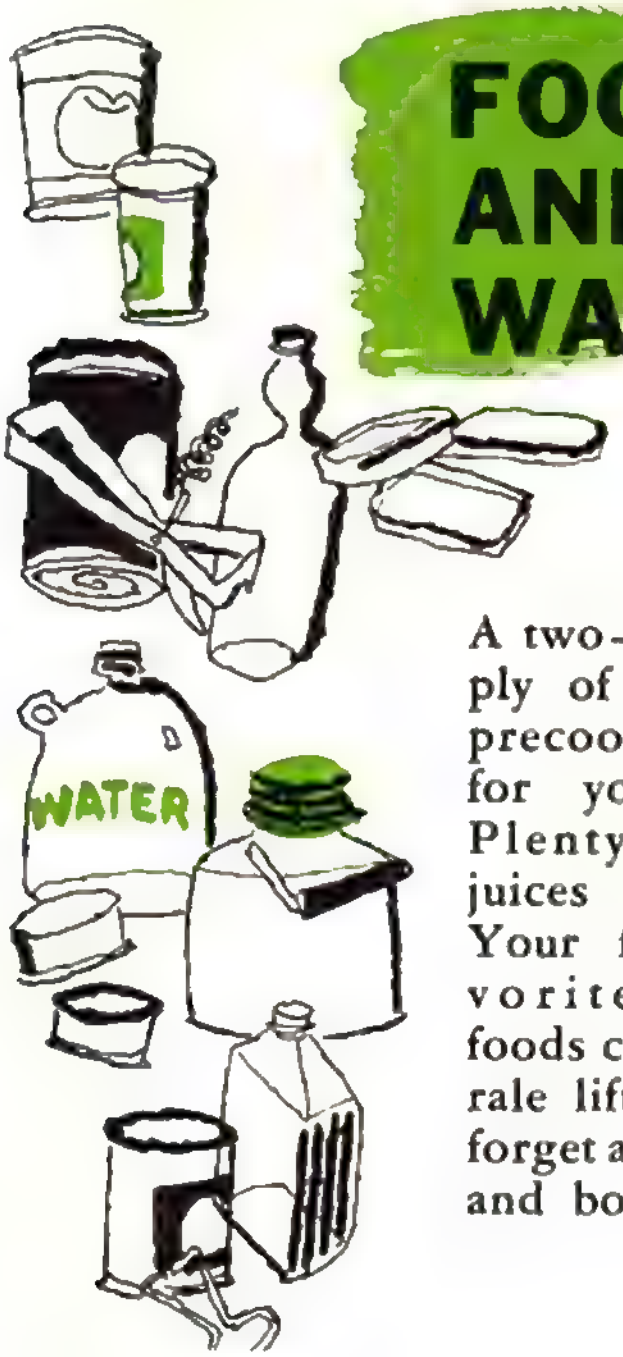
XR

YOUR SHELTER AREA SHOULD HAVE:

SPACE

Enough to take care of your family for two weeks. Remember that you will need sleeping arrangements.

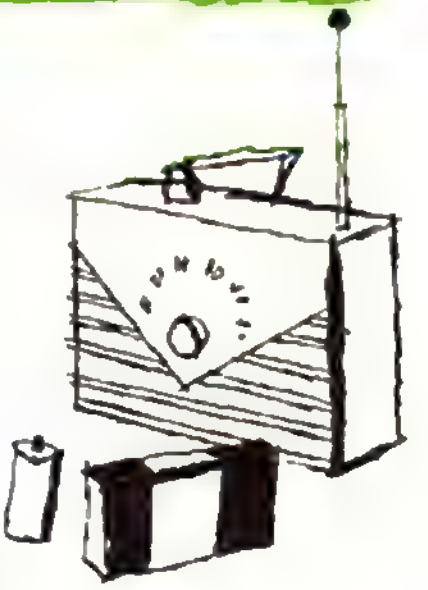
FOOD AND WATER

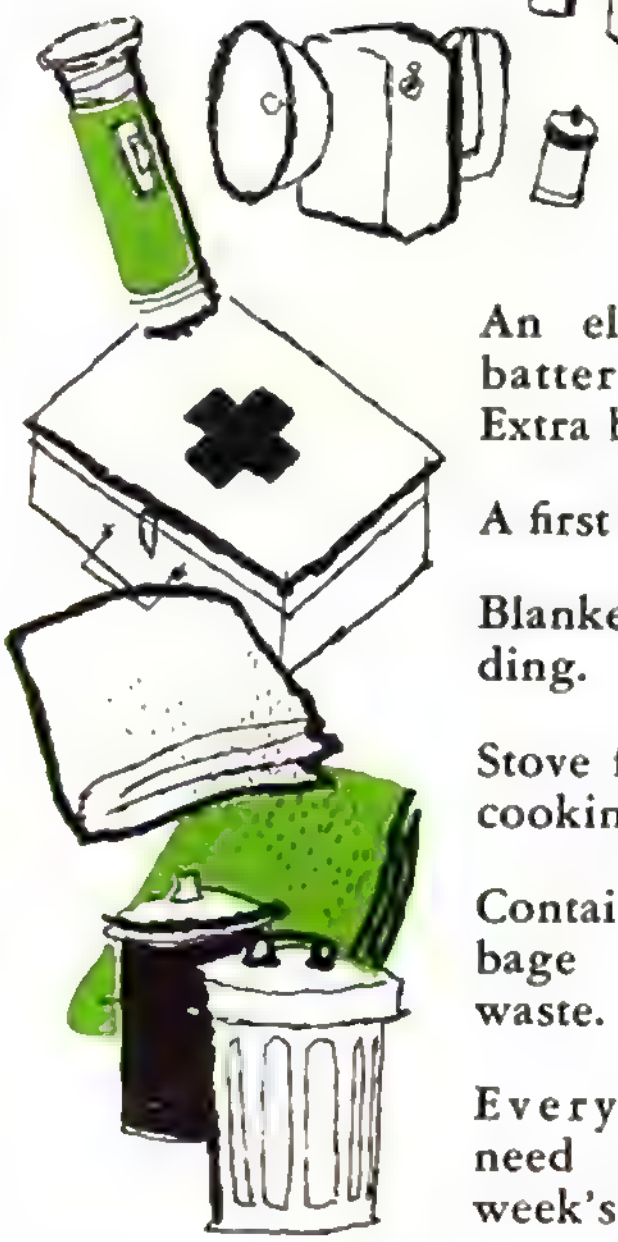


A two-weeks' supply of water and precooked foods for your family. Plenty of fruit juices and water. Your family's favorite canned foods can be a morale lifter. Don't forget a can opener and bottle opener.

EQUIPMENT

A battery operated radio to receive official instructions if your power fails. An extra supply of batteries. An outside antenna may be necessary.





An electric light, battery operated. Extra batteries.

A first aid kit.

Blankets and bedding.

Stove for heat and cooking.

Containers for garbage and human waste.

Everything you need for a two-week's stay.

NOTE.—Supplies and equipment should be stored in your shelter area. A hurried trip can be made outside of your shelter but it should not be made unless it is absolutely necessary.

XR

IN SUMMARY

Fallout is dangerous.

There are effective protective measures against it.

The best protection comes from three feet of earth or other heavy material between you and the fallout.

The best protection is planned and prepared in advance.

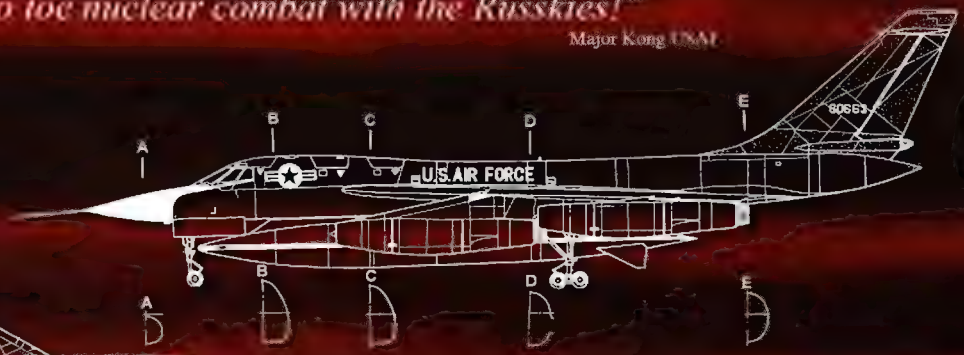
The best protection is not good enough if you can't stay in your shelter area until you are told to come out.

THE END

A Universal-International Picture

"... toe to toe nuclear combat with the Russkies!"

Major Kong USAF

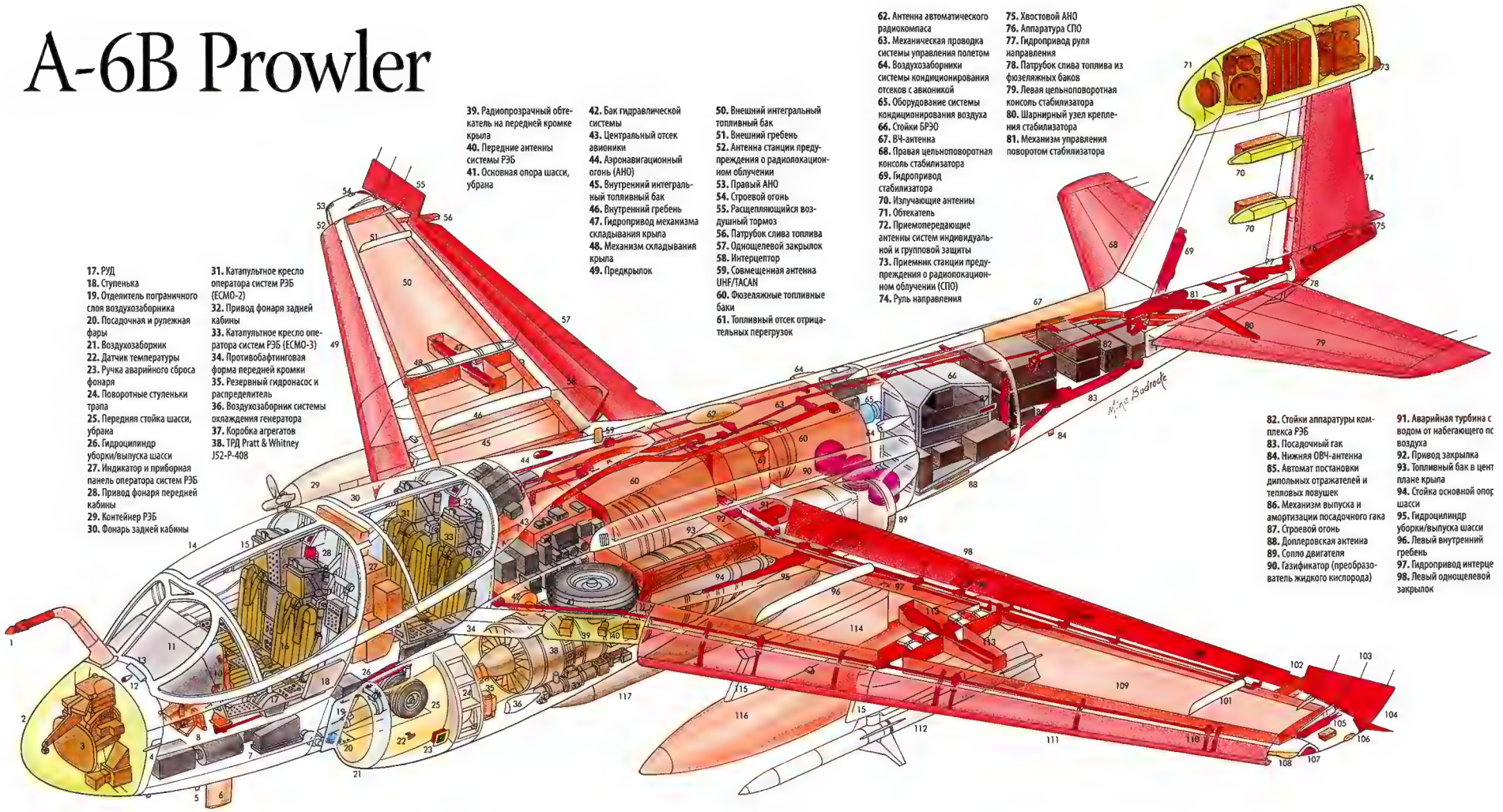


Convair B-58 Hustler

XR

CONVAIR
B-58

A-6B Prowler



17. РУД
18. Ступенька
19. Отделитель пограничного слоя воздухозаборника
20. Посадочная и рулежная фары
21. Воздухозаборник
22. Датчик температуры
23. Ручка аварийного сброса фонаря
24. Поворотные ступеньки трапа
25. Передняя стойка шасси, убрана
26. Гидроцилиндр уборки/выпуска шасси
27. Индикатор и приборная панель оператора систем РЭБ
28. Привод фонаря передней кабины
29. Контейнер РЭБ
30. Фонарь задней кабины
31. Катапультное кресло оператора систем РЭБ (ECMO-2)
32. Привод фонаря задней кабины
33. Катапультное кресло оператора систем РЭБ (ECMO-3)
34. Противобафтинговая форма передней кромки
35. Резервный гидронасос и распределитель
36. Воздухозаборник системы охлаждения генератора
37. Коробка агрегатов
38. ТРД Pratt & Whitney J52-P-408
39. Радиопрозрачный обтекатель на передней кромке крыла
40. Передние антенны системы РЭБ
41. Основная опора шасси, убрана
42. Бак гидравлической системы
43. Центральный отсек авионики
44. Аэронавигационный огонь (АНО)
45. Внутренний интегральный топливный бак
46. Внутренний гребень
47. Гидропривод механизма складывания крыла
48. Механизм складывания крыла
49. Предкрылок
50. Внешний интегральный топливный бак
51. Внешний гребень
52. Антенна станции предупреждения о радиолокационном облучении
53. Правый АНО
54. Строевой огонь
55. Расцепляющийся воздушный тормоз
56. Патрубок слива топлива
57. Однощелевой закрылок
58. Интерцептор
59. Совмещенная антенна UHF/TACAN
60. Фюзеляжные топливные баки
61. Топливный отсек отрицательных перегрузок
62. Антенна автоматического радиокомпаса
63. Механическая проводка системы управления полетом
64. Воздухозаборники системы кондиционирования отсеков с авионикой
65. Оборудование системы кондиционирования воздуха
66. Стойки БРЭО
67. ВЧ-антенна
68. Правая цельноповоротная консоль стабилизатора
69. Гидропривод стабилизатора
70. Излучающие антенны
71. Обтекатель
72. Приемопередающие антенны систем индивидуальной и групповой защиты
73. Приемник станции предупреждения о радиолокационном облучении (СПО)
74. Руль направления
75. Хвостовой АНО
76. Аппаратура СПО
77. Гидропривод руля направления
78. Патрубок слива топлива из фюзеляжных баков
79. Левая цельноповоротная консоль стабилизатора
80. Шарнирный узел крепления стабилизатора
81. Механизм управления поворотом стабилизатора
82. Стойки аппаратуры комплекса РЭБ
83. Посадочный гак
84. Нижняя ОВЧ-антенна
85. Автомат постановки дипольных отражателей и тепловых ловушек
86. Механизм выпуска и амортизации посадочного гака
87. Строевой огонь
88. Доплеровская антенна
89. Сопло двигателя
90. Газификатор (преобразователь жидкого кислорода)
91. Аварийная турбина с водом от набегающего по воздуха
92. Привод закрылка
93. Топливный бак в цент плане крыла
94. Стойка основной опор шасси
95. Гидроцилиндр уборки/выпуска шасси
96. Левый внутренний гребень
97. Гидропривод интерце
98. Левый однощелевой закрылок

191

XR

SURROUNDED BY PNEUMATIC TUBES WHICH WILL HOLD RADIOACTIVE COBALT, MONKEY GRASPS CAGE AND LOOKS AROUND WHILE HE WAITS FOR TEST TO BEGIN

SIMULATING THE A-BOMB'S RAYS

Navy scientists build a machine out of pneumatic tubes to help them discover hazards of radiation

Studying the dangerous effects of atomic radiation has been exceedingly difficult for scientists who have had no machine capable of simulating the radiation from a bomb. Their X-ray guns and electron accelerators emit only narrow beams, while an actual atomic explosion may completely blanket a victim with radiation. Now the Navy's scientists have built a machine that bombards test animals with gamma rays from all sides and thus approximates the radiation effects of a bomb.

The new device, already being used in experiments at the Naval Medical Research Institute at Bethesda, Md., consists basically of a series of long pneumatic tubes like those used to shuttle money back and forth in department stores. The tubes are arranged in rings and test animals are placed in the center (*above*). Then capsules containing radioactive cobalt are forced through the tubes by remote control to place them in a precise circle around the monkey, pig, goat or rat being used in the experiment. Most of the animals will probably die from the gamma rays, but from the experiments the scientists hope eventually to discover a drug that, given to humans, will protect them from the deadly rays of a bomb.

CONTINUED ON NEXT PAGE

XR

A Strong Force for Peace—Modern U. S. Air Power, alert and ready, helps insure your right to live in freedom. It is a major deterrent to aggression as well as America's first line of defense. Although seldom in public view, military aircraft are vital to each of the armed forces in carrying out its missions. U. S. Air Force jet fighter like these North American F-100 *Super Sabres* are a major part of our strength at home and abroad. Pratt & Whitney Aircraft engines give them supersonic speed

Interceptors beyond Sound

Radar and electronic gadgets will turn the future supersonic 'ceptor into "bird dog" aloft

■ You relax with several of your squadron buddies in the big trailer that serves as the mobile ready room. A light but steady October rain drums against the metal roof. You pilots of B Flight are on "standby," which means that you are to be ready to "scramble" within two minutes.

Then it comes. The loudspeaker squawks terse take-off orders. Grabbing helmet and oxygen mask, you sprint to the nearby revetment where the delta-winged interceptor squats ready for almost immediate take-off.

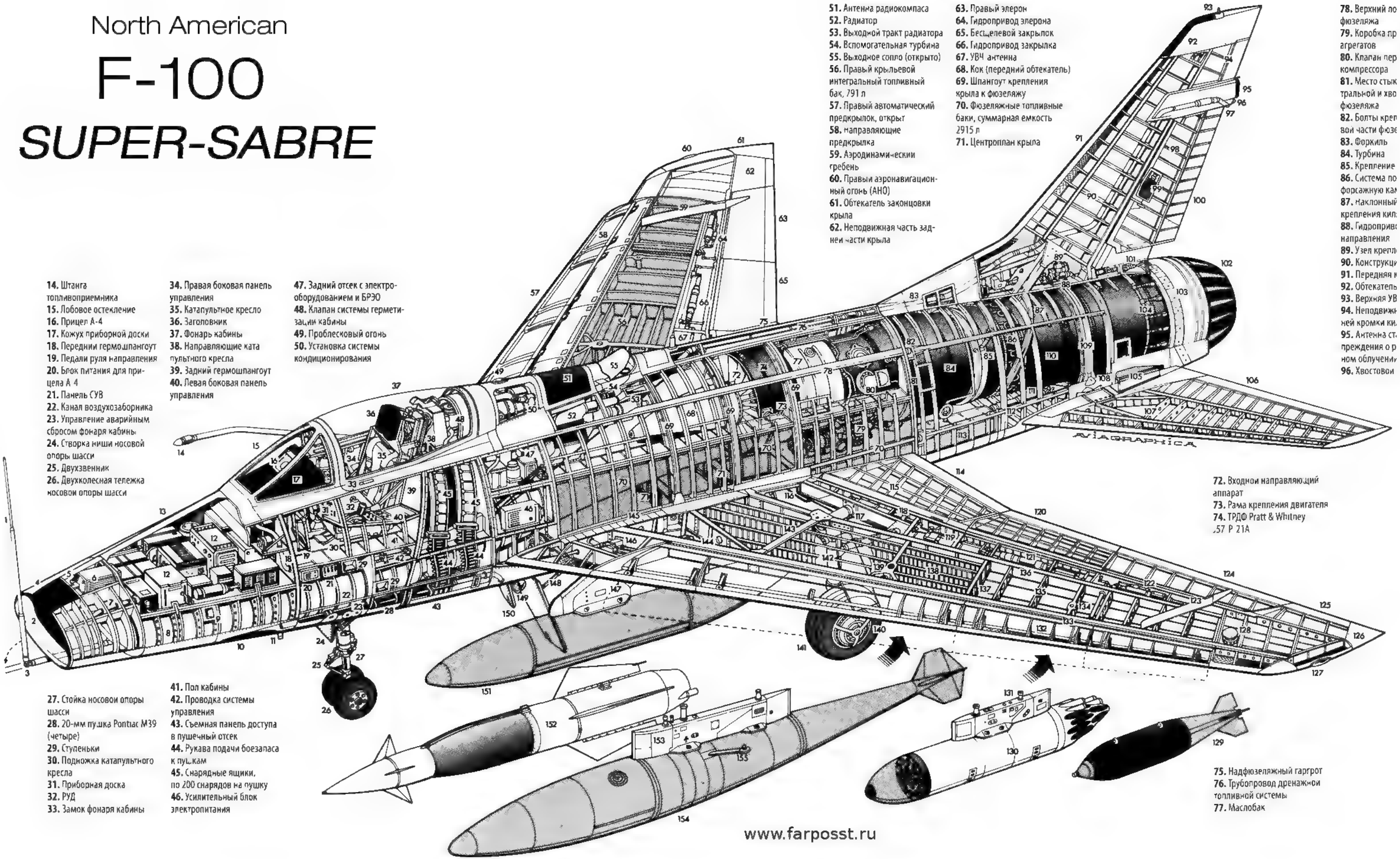
The crew chief jerks away the protective tarpaulin, then makes an adjustment on the rocket engine as you worm into the cockpit. You become busier than the proverbial one-armed paperhanger: uncage flight instruments, switch out circuit breakers, release lock. Then you hook up,

By JAMES L. H. PECK

North American

F-100

SUPER-SABRE



14. Штанга топливоприемника
15. Лобовое остекление
16. Прицел А-4
17. Кожух приборной доски
18. Передний гермошпангоут
19. Педали руля направления
20. Блок питания для прицела А-4
21. Панель СУВ
22. Канал воздухозаборника
23. Управление аварийным сбросом фонаря кабины
24. Створка ниши носовой опоры шасси
25. Двухзвенник
26. Двухколесная тележка носовой опоры шасси

27. Стойка носовой опоры шасси
28. 20-мм пушка Pontiac M39 (четыре)
29. Ступеньки
30. Подножка катапультного кресла
31. Приборная доска
32. РУД
33. Замок фонаря кабины
34. Правая боковая панель управления
35. Катапультное кресло
36. Заголовник
37. Фонарь кабины
38. Направляющие катапультного кресла
39. Задний гермошпангоут
40. Левая боковая панель управления

41. Пол кабины
42. Проводка системы управления
43. Съемная панель доступа в пушечный отсек
44. Рукава подачи боезапаса к пушкам
45. Снарядные ящики, по 200 снарядов на пушку
46. Усилительный блок электропитания
47. Задний отсек с электрооборудованием и БРЭО
48. Клапан системы герметизации кабины
49. Проблесковый огонь
50. Установка системы кондиционирования

51. Антенна радиокомпаса
52. Радиатор
53. Выходной тракт радиатора
54. Вспомогательная турбина
55. Выходное сопло (открыто)
56. Правый крыльевой интегральный топливный бак, 791 л
57. Правый автоматический предкрылок, открыт
58. направляющие предкрылка
59. Аэродинамический гребень
60. Правый аэронавигационный огонь (АНО)
61. Обтекатель законцовки крыла
62. Неподвижная часть задней части крыла

63. Правый элерон
64. Гидропривод элерона
65. Бесщелевой закрылок
66. Гидропривод закрылка
67. УВЧ антенна
68. Кок (передний обтекатель)
69. Шпангоут крепления крыла к фюзеляжу
70. Фюзеляжные топливные баки, суммарная емкость 2915 л
71. Центроплан крыла

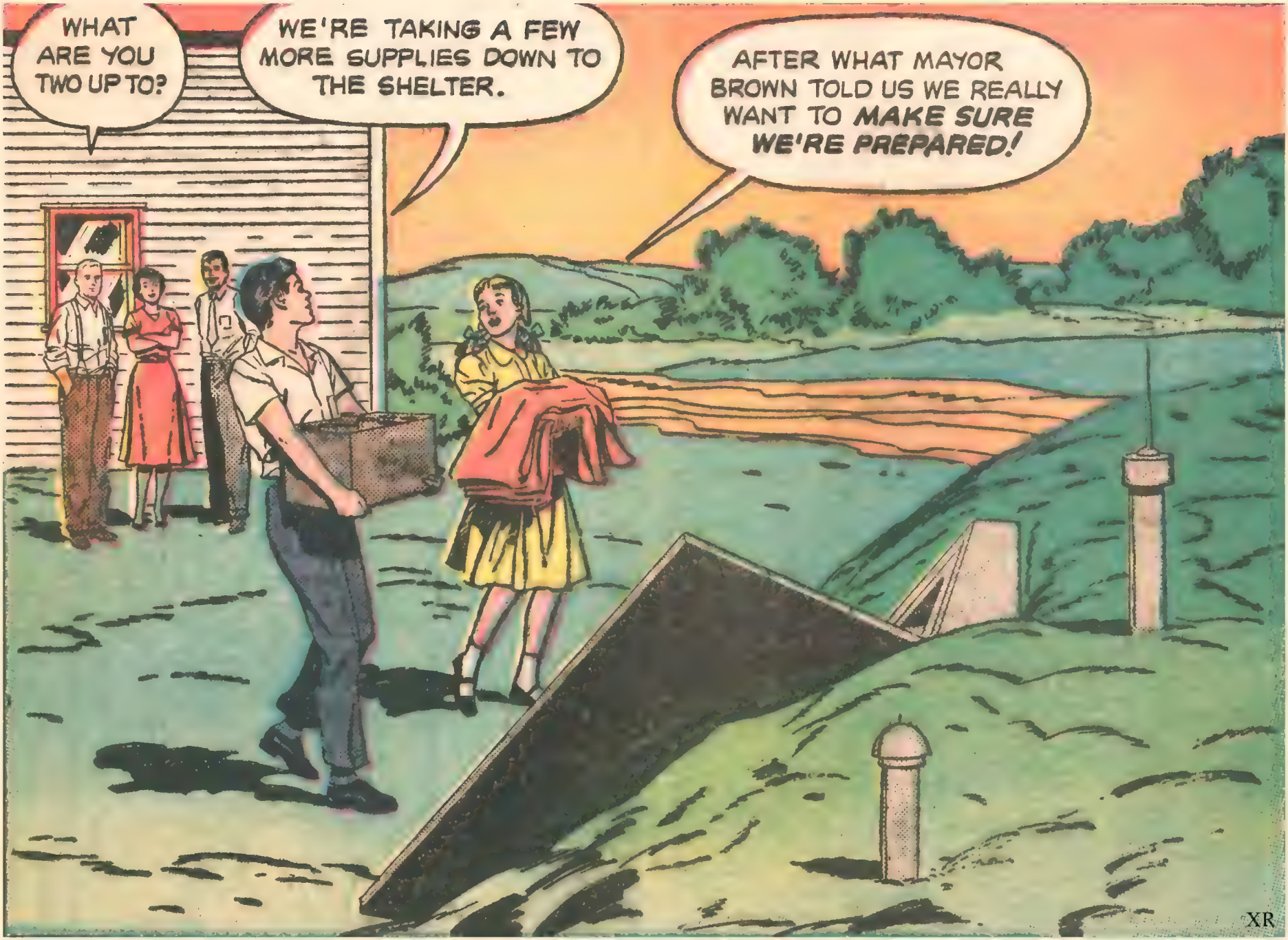
72. Входной направляющий аппарат
73. Рама крепления двигателя
74. ТРДФ Pratt & Whitney J57 P 21A

75. Надфюзеляжный гаргрот
76. Трубопровод дренажной топливной системы
77. Маслобак

78. Верхний по фюзеляжа
79. Коробка пр агрегатов
80. Клапан пер компрессора
81. Место стык тральной и хво фюзеляжа
82. Болты креп вой части фюзе
83. Форкиль
84. Турбина
85. Крепление
86. Система по форсажную ка
87. Наклонный крепления кил
88. Гидроприв направления
89. Узел крепл
90. Конструкци
91. Передняя к
92. Обтекатель
93. Верхняя УВ
94. Неподвиж ней кромки ки
95. Антенна ст преждения о р ном облучени
96. Хвостовои

www.farposst.ru

XR


WHAT ARE YOU TWO UP TO?
WE'RE TAKING A FEW MORE SUPPLIES DOWN TO THE SHELTER.
AFTER WHAT MAYOR BROWN TOLD US WE REALLY WANT TO MAKE SURE WE'RE PREPARED!
XR

AUGUST 1951 35 CENTS

ANC

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UNDERSTAND IT

REG'D. TRADE MARK, GREAT BRITAIN, No. 440436 REG. U.S. PAT. OFF.

See page 65

How Owners Rate the '51 CADILLAC

—

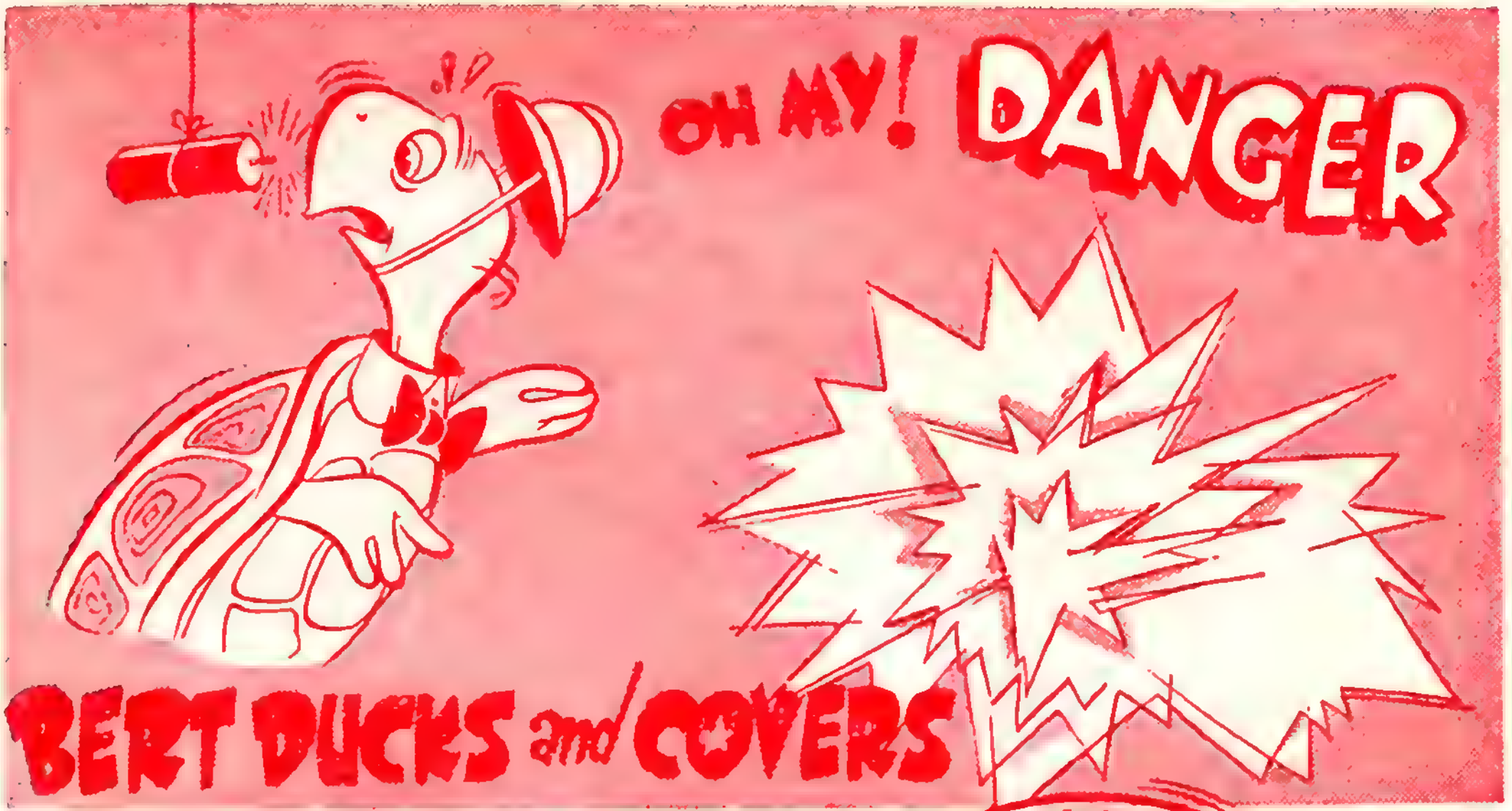
For the Home Owner

How to Install Attic Ventilating Fans

TIME

WEEKLY NEWSMAGAZINE

Artzybasheff



HE'S SMART, BUT *HE* HAS HIS SHELTER ON HIS BACK..

YOU MUST LEARN TO FIND SHELTER

At the Hanford Atomic Works a man wears a special protective suit while he transports radio-active material to another building. He actually uses a toy wagon to haul the material! Nearby an armed guard stands on duty.

STRATEGIC AIR COMMAND AND OFFUTT A.F.B. GUIDE

June 1962

ATOMIC BOMBING

HOW TO PROTECT YOURSELF

A Wise PUBLICATION

Prepared by Science Service, Inc.

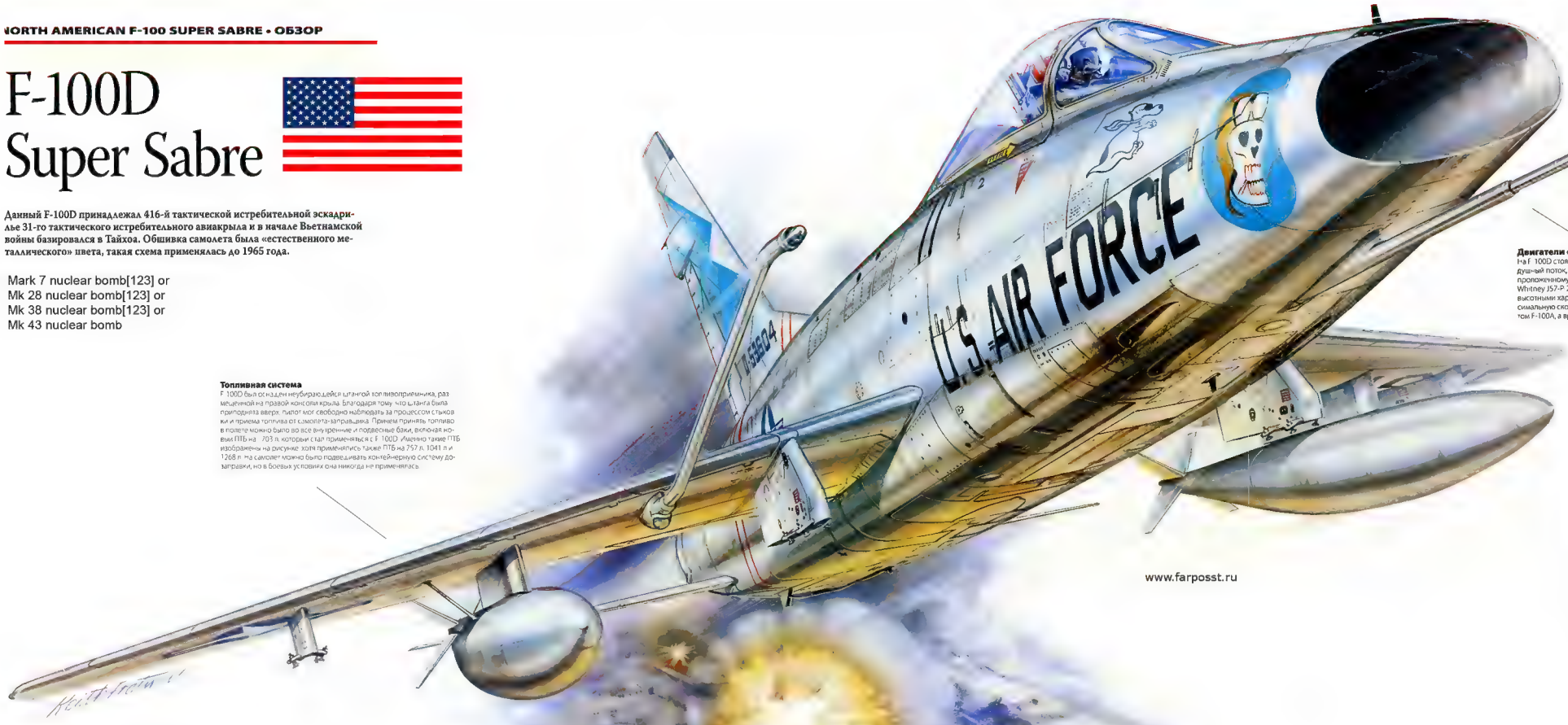
F-100D Super Sabre

Данный F-100D принадлежал 416-й тактической истребительной эскадрилье 31-го тактического истребительного авиакрыла и в начале Вьетнамской войны базировался в Тайхоа. Обшивка самолета была «естественного металлического» цвета, такая схема применялась до 1965 года.

Mark 7 nuclear bomb[123] or
Mk 28 nuclear bomb[123] or
Mk 38 nuclear bomb[123] or
Mk 43 nuclear bomb

Топливная система
F-100D был оснащен неубирающейся штангой топлиповприемника, размещенной на правой консоли крыла. Благодаря тому, что штанга была приподнята вверх, пилот мог свободно наблюдать за процессом стыковки и приема топлива от самолета-заправщика. Принем принять топливо в полете можно было во все внутренние и подвесные баки, включая новых ПТБ на 703 л, которыи стал применяться с F-100D. Именно такие ПТБ изображены на рисунке, хотя применяться также ПТБ на 757 л, 1041 л и 1268 л. На самолет можно было подвешивать контейнерную систему дозаправки, но в боевых условиях она никогда не применялась.

Конструктивные проблемы
21 октября 1967 года выявился главный конструктивный недостаток F-100. В ходе выступления на авиашоу на авиабазе Лафлин, штат Техас, у F-100D капитана Мерриелла Макпика во время кабрирования с перегрузкой 6,5g произошло разрушение конструкции кессона крыла, в результате чего был поврежден передний фюзеляжный топливный бак, и топливо устремилось к двигателю. Произошел взрыв и возник пожар, после чего Макпик принял решение катапультироваться. Во Вьетнаме во время схожих маневра был потерян не один самолет. В итоге полеты самолетов были прекращены, а пилотам F-100, принимающих участие в боевых действиях, было запрещено выполнять маневры с перегрузками более 4g. Во время изучения останков самолета F-100D капитана Макпика были выявлены около 40 мест начавшегося разрушения целостности конструкции нижней части крыла — в узлах крепления элементов основных опор шасси. Временной мерой стала установка в этом районе усиливающих металлических полос, что обошлось в 900 долларов на самолет, а затем разработчики перепроектировали кессон крыла и организовали его выпуск с последующим переоснащением всех имеющихся в эскадрильях самолетов, что уже обошлось бюджету в весьма круглениькую сумму.

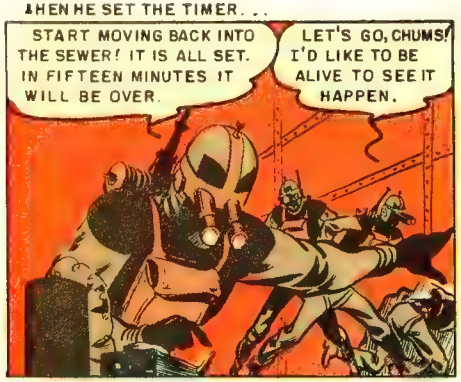


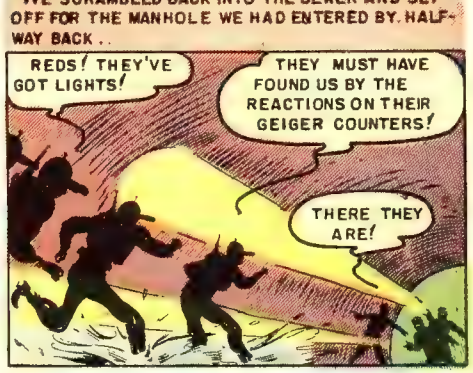
Двигатели «Pratt & Whitney»
На F-100D стоял один двигатель Pratt & Whitney J57-P-21A тягой 75,40 кН. душный поток, поступающий через воздухозаборник овального сечения проложенному под кабиной каналу шел непосредственно на двигатель. Whitney J57-P-21A устанавливался с модификации F-100C, он обладал лу высотными характеристиками и обеспечивал F-100C на 65 км/ч большую симальную скорость по сравнению с оснащенным двигателем J57-P-7 ва том F-100A, а время набора высоты 10670 м сократилось на 10%.

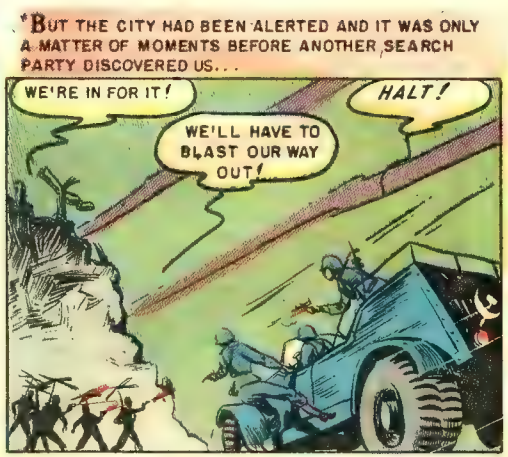
Вооружение
F-100A был истребителем завоевания превосходства духе и вооружался лишь четырьмя 20-мм пушками Pon M39E (располагались внизу носовой части фюзеляжа, пас — по 200 снарядов на ствол, имелся прицел A-4). ко F-100C командование ВВС США желало видеть уже многоцелевого самолета, способного решать также и истребителя-бомбардировщика. В итоге на машину ус вили шесть съемных подкрыльевых пилонов, однов но усилив конструкцию крыла. Предполагалось, что п ударным средством самолета станут тактические ядер боеприпасы, но была предусмотрена возможность по ки контейнеров с напалмом, обычных авиабомб калиб от 227 кг до 908 кг, а также блоков HAP. Во Вьетнаме ле ки обычно применяли авиабомбы серии Mk 80, 340-кг бы M117, кассетные боеприпасы, зажигательные бомб тейнеры с напалмом и HAP. Последние использовали средство поражения, и для обозначения целей проти

www.farposst.ru

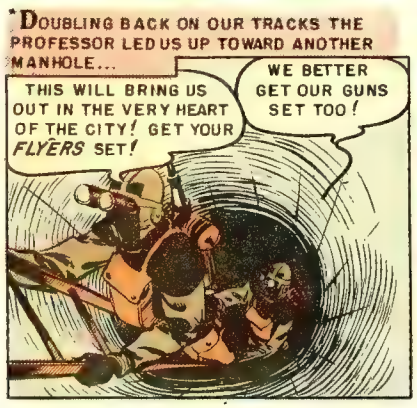
Maximum speed: (864 mph Mach 1.3
Range: 1,733 NM (1,995 mi, 3,210 km)
Service ceiling: 50,000 ft (15,000 m)
Rate of climb: 22,400 ft/min (114 m/s)
Wing loading: 72.1 lb/ft² (352 kg/m²)
Thrust/weight: 0.55
Lift-to-drag ratio: 13.9

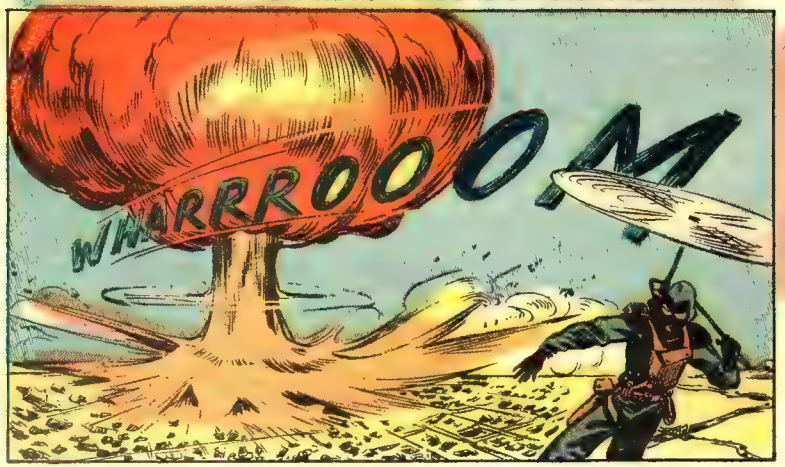

...HEN HE SET THE TIMER...
START MOVING BACK INTO THE SEWER! IT IS ALL SET. IN FIFTEEN MINUTES IT WILL BE OVER.
LET'S GO, CHUMS! I'D LIKE TO BE ALIVE TO SEE IT HAPPEN.


"WE SCRAMBLED BACK INTO THE SEWER AND SET OFF FOR THE MANHOLE WE HAD ENTERED BY. HALF-WAY BACK..
REDS! THEY'VE GOT LIGHTS!
THEY MUST HAVE FOUND US BY THE REACTIONS ON THEIR GEIGER COUNTERS!
THERE THEY ARE!


"BUT THE CITY HAD BEEN ALERTED AND IT WAS ONLY A MATTER OF MOMENTS BEFORE ANOTHER SEARCH PARTY DISCOVERED US...
WE'RE IN FOR IT!
HALT!
WE'LL HAVE TO BLAST OUR WAY OUT!

"UNDER HEAVY FIRE WE TOOK TO THE AIR WITH OUR ONE-MAN FLYERS. I THOUGHT IT WAS MY LAST MOMENT ON EARTH...


"DOUBLING BACK ON OUR TRACKS THE PROFESSOR LED US UP TOWARD ANOTHER MANHOLE...
THIS WILL BRING US OUT IN THE VERY HEART OF THE CITY! GET YOUR FLYERS SET!
WE BETTER GET OUR GUNS SET TOO!


"WE JUST REACHED THE SAFETY ZONE WHEN THE PILE AND THE WHOLE CITY WENT SKY HIGH. IT WAS A TERRIBLE SIGHT. ONE I NEVER HOPE TO SEE AGAIN...
WHARRROOOM

"AND THAT'S THE STORY, TOMMY. WHEN I SEE YOU I'VE GOT SOME SOUVENIRS I KNOW YOU'LL LIKE. SO UNTIL THEN TAKE CARE OF YOURSELF...

LOVE, PETE..."

THE END

XR

'Don't Fence My Baby In.'

XR

SURVIVAL

How to Protect

YOURSELF • YOUR FAMILY • YOUR COMMUNITY

IN EVENT OF ATTACK!

XR

OBJECT 279

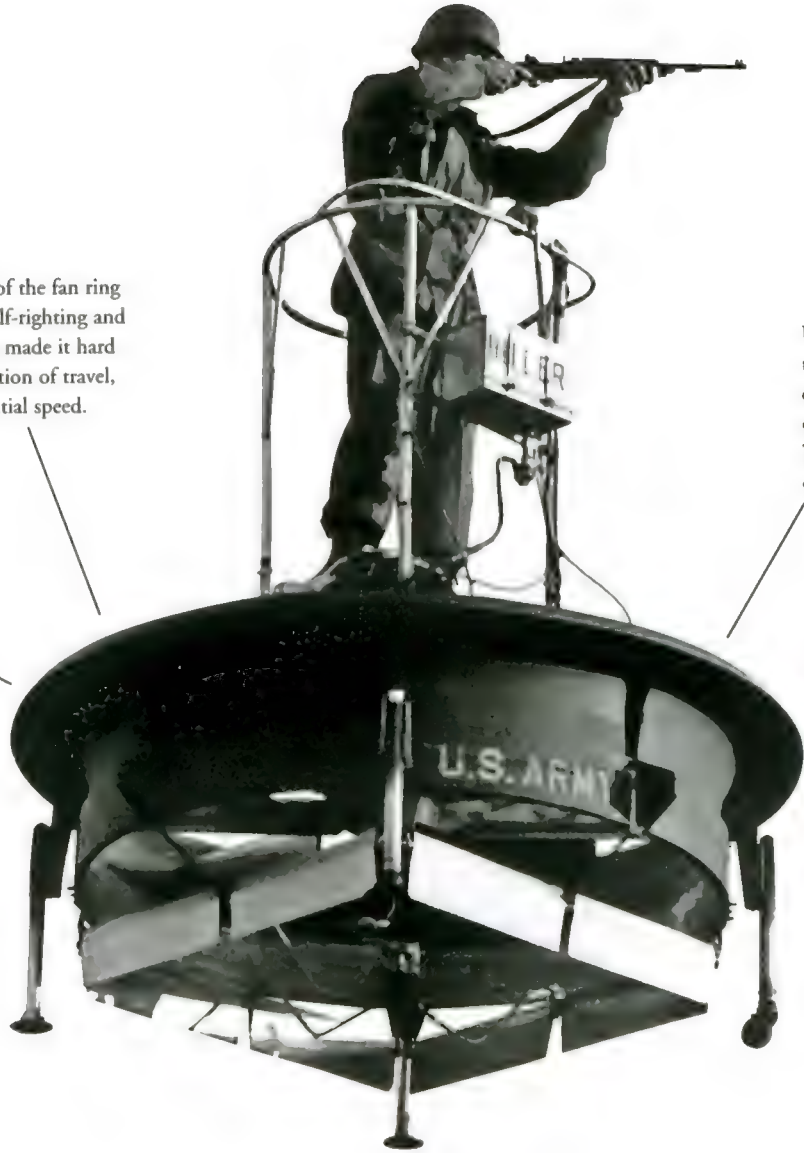
Soviet Heavy Tank

Amusing Hobby

35A001

1/35 XR

Yuriy Petelin 2013



The lifting effect of the fan ring made the VZ-1 self-righting and very stable. It also made it hard to tilt in the direction of travel, reducing its potential speed.

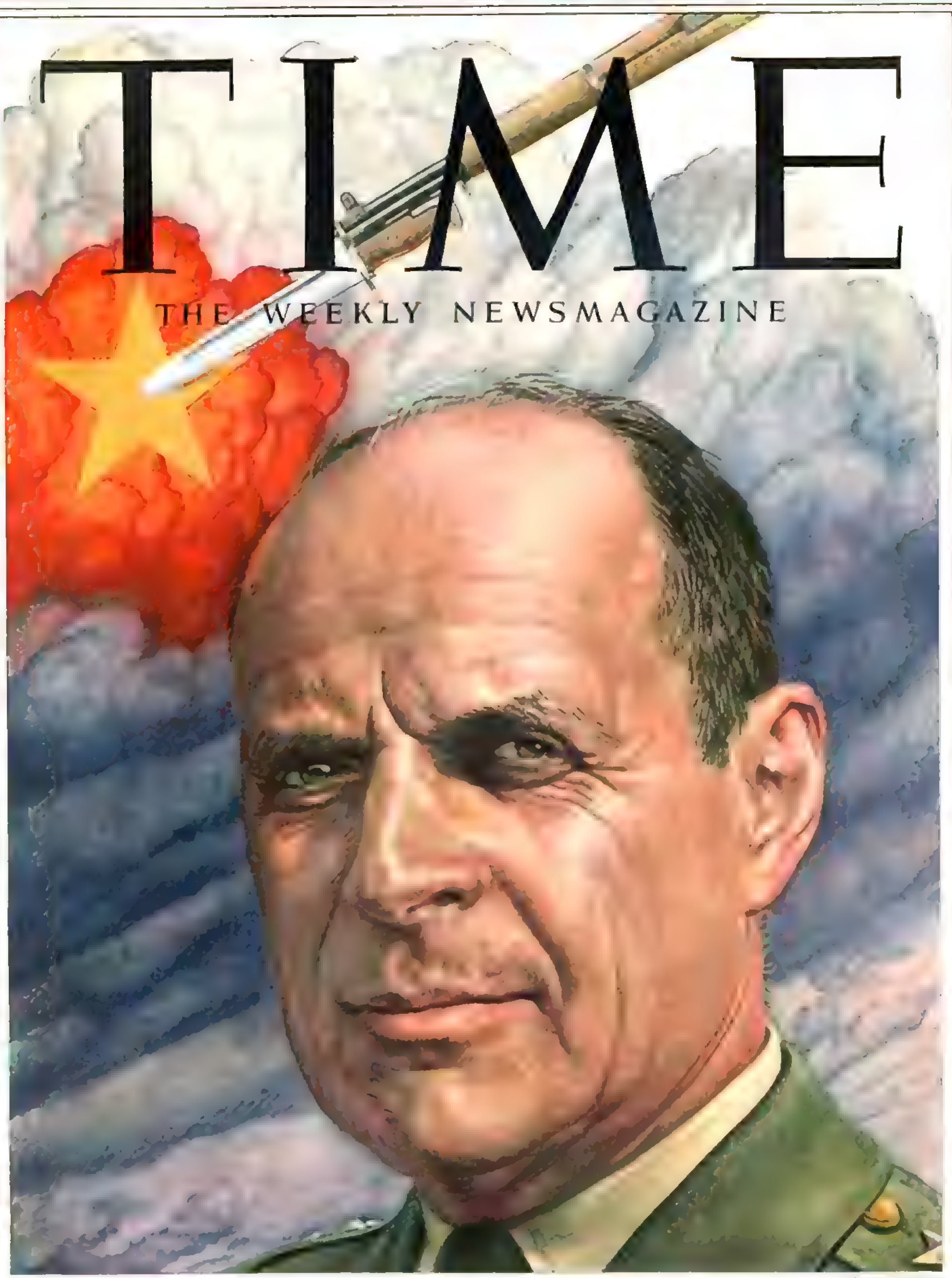
The original model could not climb out of ground effect, which was the same as the rotor diameter, about 1.5m (5ft). This caused a lot of dust and flying debris.

Using Bernoulli's principles, the Pawnee achieved 60 per cent of its lift from air moving over the fan's leading edge. The rest was generated directly by the propellers.

"LET'S GET A LOCK FOR THIS THING"

TIME

THE WEEKLY NEWSMAGAZINE



GENERAL RIDGWAY

What price peace?

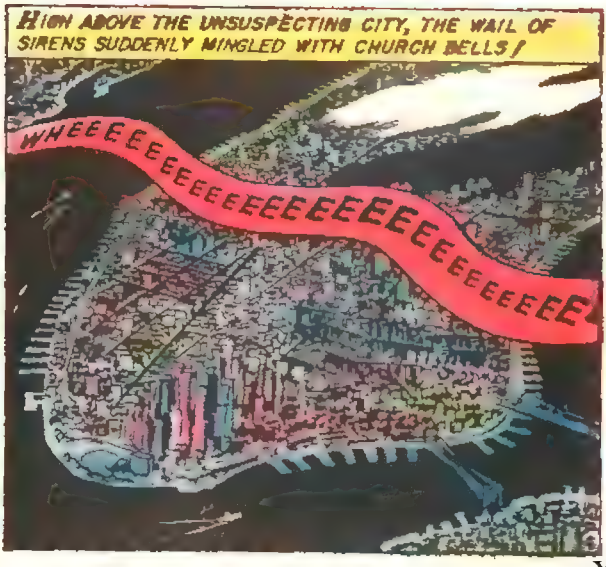
USAF
ES-058

XR

ONLY A STRONG AMERICA CAN PREVENT
NOV.
10¢
ATOMIC
WAR!

A HALF HOUR LATER...
THERE'S A STRANGE REPORT FROM CANADA--QUEBEC PROVINCE/ SOUND OF UNIDENTIFIED PLANES FLYING HIGH ABOVE CLOUD BANK/ FLIGHT IS UNSCHEDULED/
PROBABLY A CANADIAN AIR FORCE UNIT THEY FORGOT ABOUT/ KEEP A LINE OPEN THOUGH, JERSON/
ANOTHER HALF HOUR PASSED...
WHAT ABOUT THOSE REPORTS FROM CANADA? ANYTHING NEW IN THE LAST HALF HOUR?
NOTHING SO FAR, COLONEL WINTERS/ SAME STORY OVER MAINE/ UNIDENTIFIED PLANES AT FORTY-THOUSAND FEET/ AIR SPEED SHOWS THEY'RE JETS/ THEY'VE SENT UP INTERCEPTORS FROM BOSTON TO CHECK/
MOMENTS LATER...
WHA...? COLONEL--GET THIS FROM BOSTON/ PLANES POSITIVELY IDENTIFIED AS MKV-4's, RUSSIAN HEAVY JET BOMBERS, HEADED THIS WAY/
KLEMENT--PLOT THAT/ SEND THE RED FLASH TO ALL INTERCEPTOR UNITS AT ONCE/ I'M GOING TO WATCH OUR RADAR SCREEN/
WHAT? TEN OF OUR FIGHTERS SHOT DOWN/ THREE RUSSIAN BOMBERS KNOCKED OUT/ THEY'RE STILL COMING... FONTY OF THEM/
KLEMENT, DID THOSE PLANES JET OFF THE GROUND?
ALL INTERCEPTORS LEFT THEIR FIELDS TWENTY MINUTES AGO, COLONEL/ I'M CHECKING THEIR PROGRESS NOW/
THE ROOM VIBRATED WITH TENSION AS MOMENTS WENT BY...
COLONEL, THE REDS ARE REPORTED OVER SCHENECTADY/ IT CAN'T BE/ WHERE ARE THOSE JET INTERCEPTORS?
KLEMENT, WHAT'S HAPPENING? LET ME SEE THAT PLOTTING BOARD/
3

XR


HIGH ABOVE THE UNSUSPECTING CITY, THE WAIL OF SIRENS SUDDENLY MINGLED WITH CHURCH BELLS!
WHEEE

FORTY THOUSAND FEET ABOVE THE PANICKED METROPOLIS..

BOMBARDIER TO COMRADE PILOT! ON TARGET! GET READY! ONE, TWO, THREE, FOUR

DOWN, DOWN, ITS PIERCING SCREAM BLENDING WITH THE WAIL OF SIRENS, RUSHED THE A-BOMB, THE GREATEST DESTRUCTIVE FORCE EVER DEVISED BY THE HAND OF MAN!

SECONDS LATER, THE BOMB STRUCK, AND NEW YORK BECAME A RAGING INFERNO!

BROKEN MOLTEN BRIDGES CRASHED INTO THE EAST RIVER, AND THE VERY WATER SEEMED ON FIRE!

THE PONDEROUS QUEEN MARY HAD JUST PASSED THE STATUE OF LIBERTY WHEN THE CATASTROPHE STRUCK!

MOMENTS AFTER THE BLAST, A HUGE TIDAL WAVE GATHERED MOMENTUM IN LOWER NEW YORK HARBOR!
LIKE A HUGE BATTERING RAM, IT SWEPT OVER LOWER MANHATTAN!
THE SHELTERS BECAME POOLS OF DEATH WHERE THOUSANDS DROWNED!
ARRREEEE!
YAAAARGH!
HEEEELP!
SHEETS OF FLAME ROARED ABOVE THE GAS WORKS ON THE EAST RIVER DRIVE!
IN THE LABYRINTHINE CELLARS BENEATH, PANICKED WORKERS RUSHED TO SHUT OFF THE HUGE RESERVOIR TANKS BURIED DEEP IN THE EARTH...
SHUT OFF THESE GAS RESERVOIRS! HURRY! THE FIRES ARE GETTING CLOSER!
IF THEY BLOW, EVERYTHING WILL GO A MILE IN THE AIR!
TOO LATE! THE GAS MAINS EXPLODED WITH THE IMPACT OF AN EARTHQUAKE!
BLAM!

When the roof blocks are all in place, the final rows of wall blocks are mortared into position. The structure is complete. (See fig. 7.) Building plans are on page 21.

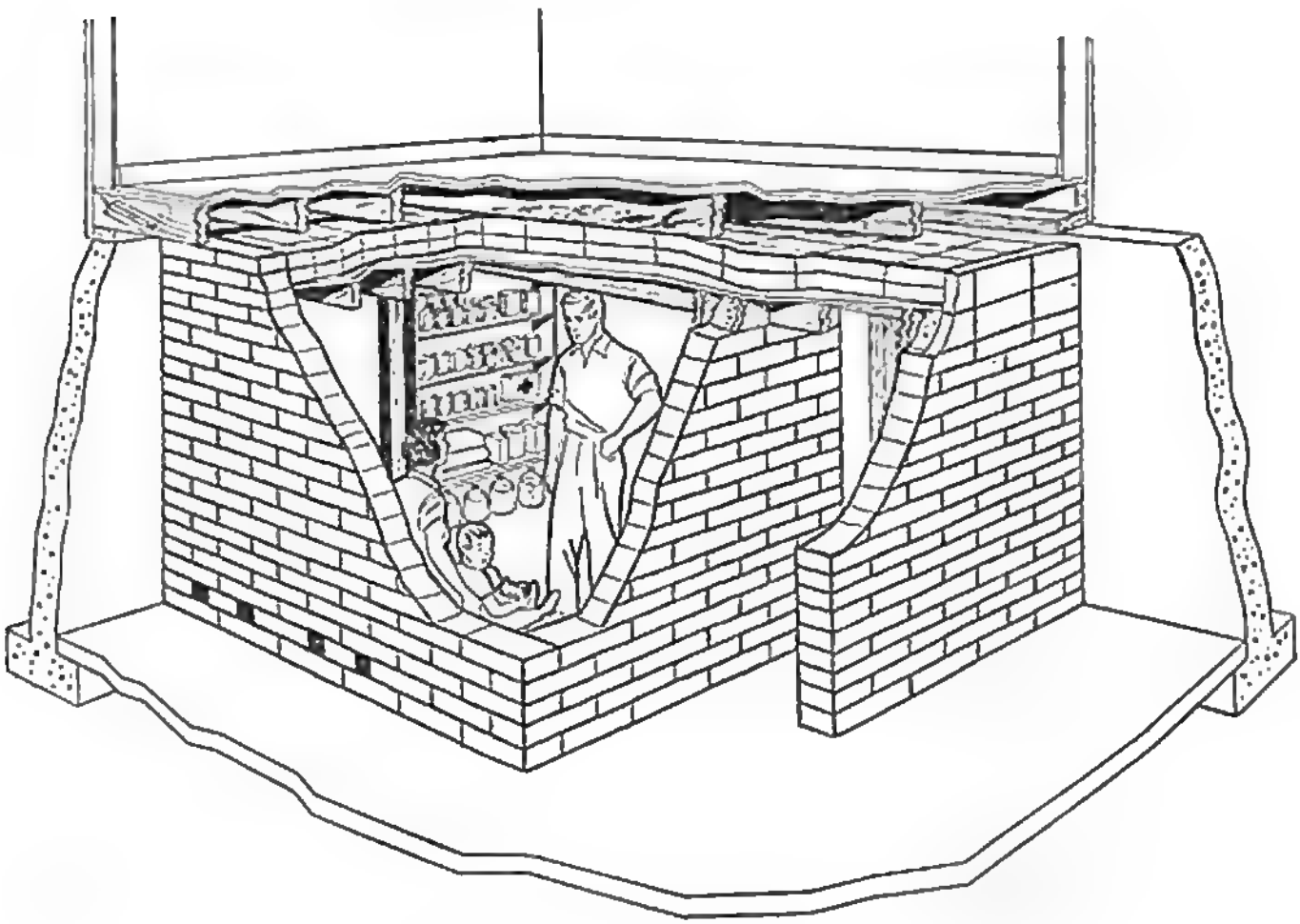


Figure 7—Basement Concrete Block Shelter

Solid concrete blocks, relatively heavy and dense, are used for this shelter. These blocks are sold in various sizes so it seldom is necessary to cut a block to fit.

Solid blocks are recommended because hollow blocks would have to be filled with concrete to give effective protection.

Bricks are an alternative. If they are used, the walls and roof should be 10 inches thick to give the same protection as the 8-inch solid concrete blocks.

XR

THE CAPTAIN WAS POWERLESS IN THE GRIP OF THE METAL MONSTER/

OTHER CREATURES...BIPEDS/ THEY LOOK LIKE HUMANS IN THEIR SPACE SUITS/

THE STEEL GIANT SET HIM DOWN IN THE MIDST OF THE OTHERS... AND THEN HE EXPERIENCED BOTH RELIEF AND SHOCK/

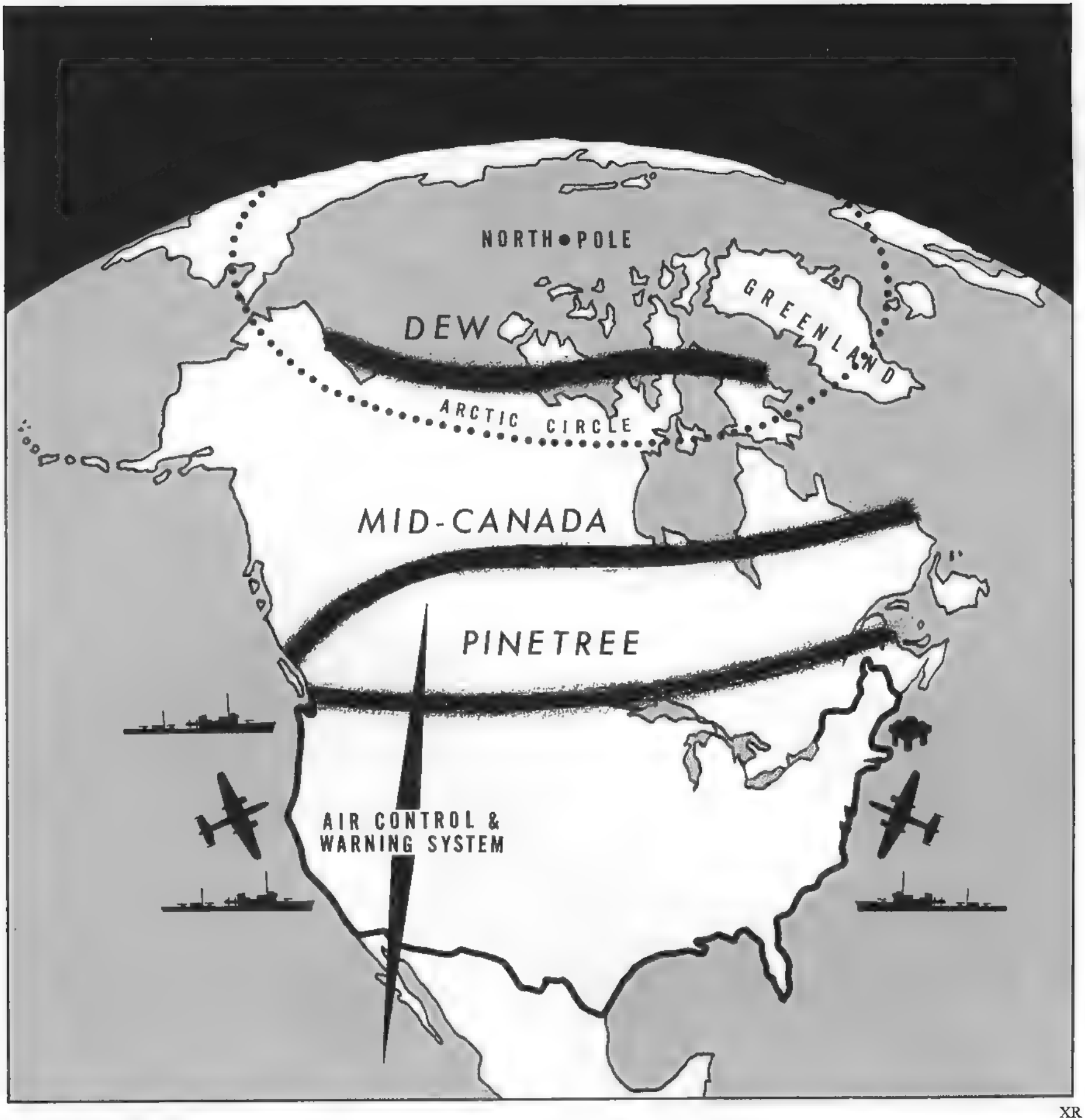
WELL, YANKEE, YOU FINALLY MADE IT, TOO, EH? BUT TOO LATE/ WE HAVE ALREADY CLAIMED THE MOON IN THE NAME OF THE SOVIET UNION/ YOU ARE NOW A PRISONER/ SURPRISED, EH?

YES, I ADMIT I AM/ BUT I DO NOT RECONGNIZE YOUR AUTHORITY ON THE MOON TO MAKE ME A PRISONER/

THIS IS MY AUTHORITY/ COMRADE BORESHEV, LOCK HIM IN THE STORE-ROOM ON THE SHIP/

5

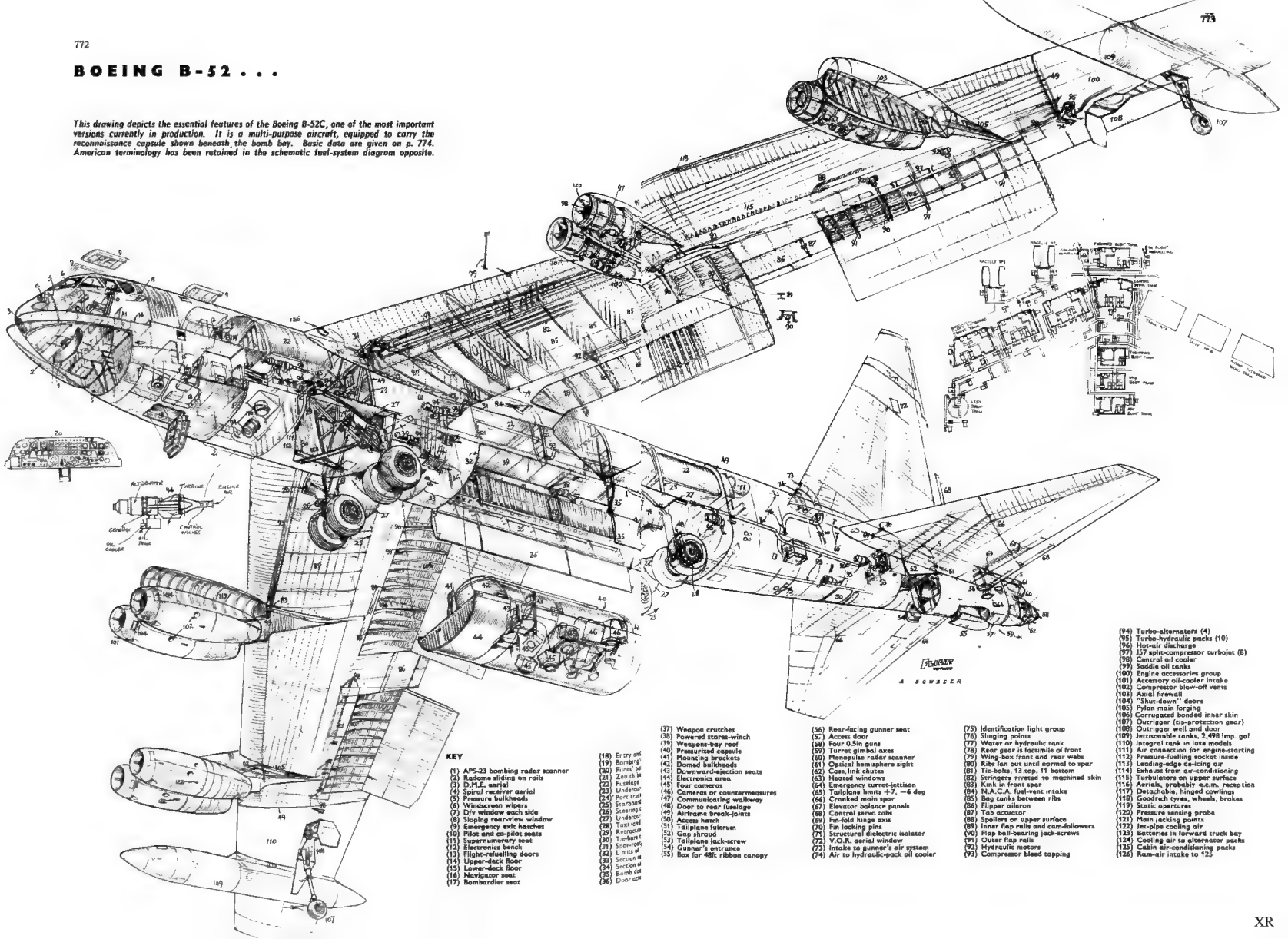
CONTINUED AFTER FOLLOWING PAGE


NORTH • POLE
GREENLAND
DEW
ARCTIC CIRCLE
MID-CANADA
PINETREE
AIR CONTROL &
WARNING SYSTEM

XR

BOEING B-52 . . .

This drawing depicts the essential features of the Boeing B-52C, one of the most important versions currently in production. It is a multi-purpose aircraft, equipped to carry the reconnoissance capsule shown beneath the bomb bay. Basic data are given on p. 774. American terminology has been retained in the schematic fuel-system diagram opposite.



KEY

(1) APS-23 bombing radar scanner
(2) Radome sliding on rails
(3) D.M.E. aerial
(4) Spiral receiver aerial
(5) Pressure bulkheads
(6) Windscreen wipers
(7) D/v window each side
(8) Sloping rear-view window
(9) Emergency exit hatches
(10) Pilot and co-pilot seats
(11) Supernumerary seat
(12) Electronics bench
(13) Flight-refuelling doors
(14) Upper-deck floor
(15) Lower-deck floor
(16) Navigator seat
(17) Bombardier seat
(18) Entry and
(19) Bombing
(20) Pilots' de
(21) Zenith
(22) Fuselage
(23) Undercar
(24) Port crat
(25) Starboard
(26) Steering
(27) Undercar
(28) Taxi-ligh
(29) Retracta
(30) Tie-bars
(31) Spar-roo
(32) Limits of
(33) Section re
(34) Section a
(35) Bomb doo
(36) Door ope
(37) Weapon crutches
(38) Powered stores-winch
(39) Weapons-bay roof
(40) Pressurized capsule
(41) Mounting brackets
(42) Domed bulkheads
(43) Downward-ejection seats
(44) Electronics area
(45) Four cameras
(46) Cameras or countermeasures
(47) Communicating walkway
(48) Door to rear fuselage
(49) Airframe break-joints
(50) Access hatch
(51) Tailplane fulcrum
(52) Gap shroud
(53) Tailplane jack-screw
(54) Gunner's entrance
(55) Box for 48ft ribbon canopy
(56) Rear-facing gunner seat
(57) Access door
(58) Four 0.5in guns
(59) Turret gimbal axes
(60) Monopulse radar scanner
(61) Optical hemisphere sight
(62) Case link chutes
(63) Heated windows
(64) Emergency turret-jettison
(65) Tailplane limits +7, −6 deg
(66) Cranked main spar
(67) Elevator balance panels
(68) Control servo jabs
(69) Fin-fold hinge axis
(70) Fin locking pins
(71) Structural dielectric isolator
(72) V.O.R. aerial window
(73) Intake to gunner's air system
(74) Air to hydraulic-pack oil cooler
(75) Identification light group
(76) Slinging points
(77) Water or hydraulic tank
(78) Rear gear is facsimile of front
(79) Wing-box front and rear webs
(80) Ribs fan out until normal to spar
(81) Tie-bolts, 13 cap, 11 bottom
(82) Stringers riveted to machined skin
(83) Kink in front spar
(84) N.A.C.A. fuel-vent intake
(85) Bag tanks between ribs
(86) Flipper aileron
(87) Tab actuator
(88) Spoilers on upper surface
(89) Inner flap rails and cam-followers
(90) Flap ball-bearing jack-screws
(91) Outer flap rails
(92) Hydraulic motors
(93) Compressor bleed tapping
(94) Turbo-alternators (4)
(95) Turbo-hydraulic packs (10)
(96) Hot-air discharge
(97) J57 split-compressor turbojet (8)
(98) Central oil cooler
(99) Saddle oil tanks
(100) Engine accessories group
(101) Accessory oil-cooler intake
(102) Compressor blow-off vents
(103) Axial firewall
(104) "Shut-down" doors
(105) Pylon main forging
(106) Corrugated bonded inner skin
(107) Outrigger (tip-protection gear)
(108) Outrigger well and door
(109) Jettisonable tanks, 2,498 Imp. gal
(110) Integral tank in late models
(111) Air connection for engine-starting
(112) Pressure-fuelling socket inside
(113) Leading-edge de-icing air
(114) Exhaust from air-conditioning
(115) Turbulators on upper surface
(116) Aerials, probably e.c.m. reception
(117) Detachable, hinged cowlings
(118) Goodrich tyres, wheels, brakes
(119) Static apertures
(120) Pressure sensing probe
(121) Main jacking points
(122) Jet-pipe cooling air
(123) Batteries in forward truck bay
(124) Cooling air to alternator packs
(125) Cabin air-conditioning packs
(126) Ram-air intake to 125

DESTINED TO BE THE MOST TALKED ABOUT FILM OF OUR TIME!

An orgy of looting and lust...
"A"-DAY...when civilization
came to an end!

AMERICAN INTERNATIONAL PICTURES presents

PANIC IN YEAR ZERO

STARRING **RAY MILLAND**

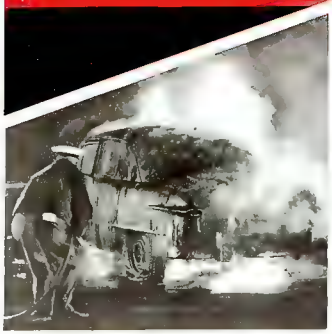
JEAN HAGEN · ALSO STARRING **FRANKIE AVALON**

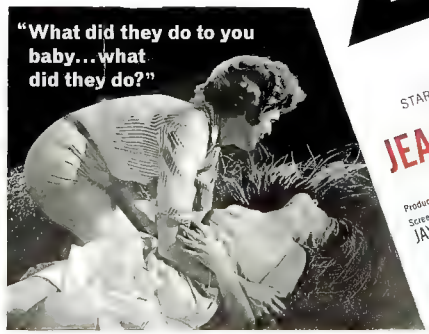
Produced by LOU RUSOFF and ARNOLD HOUGHLAND · Directed by RAY MILLAND

Screenplay by JAY SIMMS and JOHN MORTON · Executive Producers JAMES H. NICHOLSON and SAMUEL Z. ARKOFF

AN AMERICAN INTERNATIONAL PICTURE

XR





COPYRIGHT © 1962 AMERICAN INTERNATIONAL PICTURES PRINTED IN U.S.A.

62/114

THE INDEPENDENT SUBWAY HAD JUST DRAWN INTO THE WEST FIFTIETH STREET STATION WHEN THE CRUSHING BLOW FELL!

YIIIIII!

WHEN THE STUNNED SURVIVORS EMERGED...

WH WHAT HAPPENED? IT LOOKS LIKE THE WORLD'S COMING TO AN END!

WE'RE TRAPPED! TRAPPED! WE'LL NEVER GET OUT ALIVE! AAAIII!

THE JEWEL OF NEW YORK'S PARKS, CENTRAL PARK, WAS INUNDATED BY ITS OWN RESERVOIR!

THE GEORGE WASHINGTON BRIDGE SNAPPED ITS CABLES AND COLLAPSED!

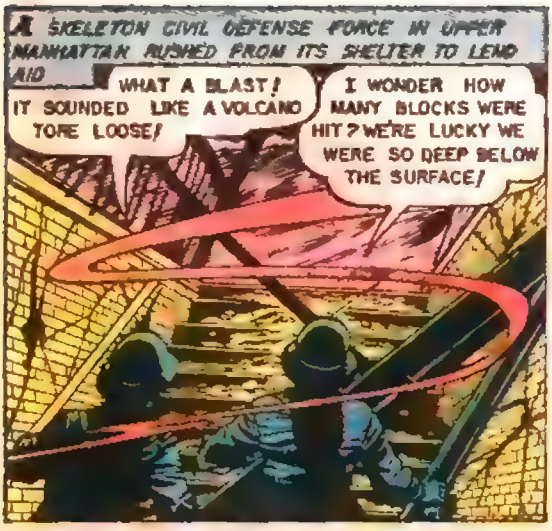
IN THE LINCOLN TUNNEL, HUNDREDS OF FEET BENEATH THE HUDSON, AT THE MOMENT OF THE BOMB'S IMPACT..

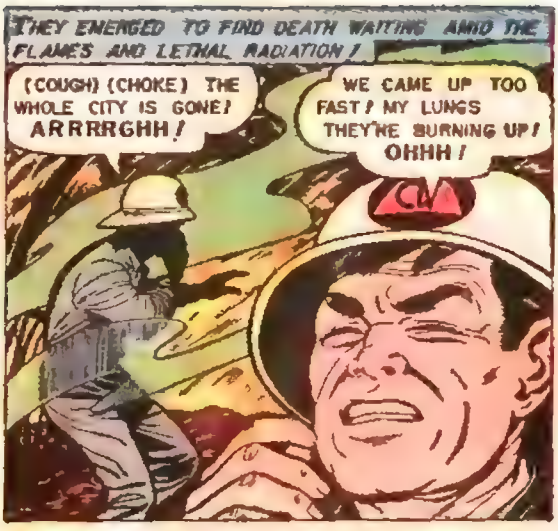
WE'RE CAUGHT IN AN EARTHQUAKE!

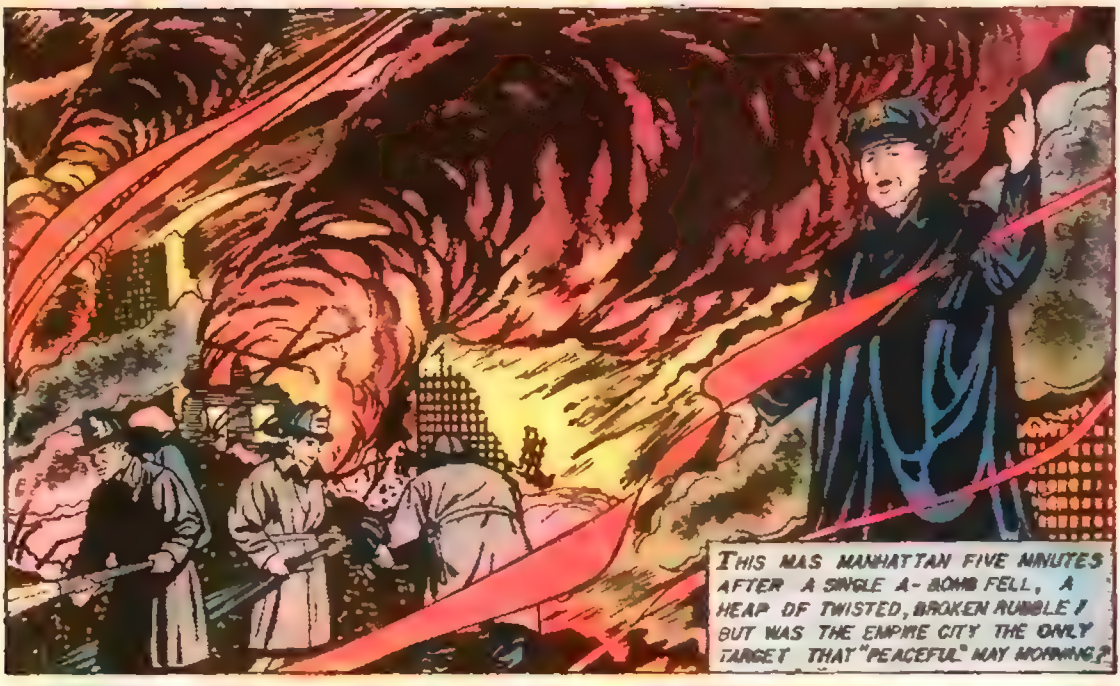
THE TUNNEL'S ROOF IS GIVING WAY!

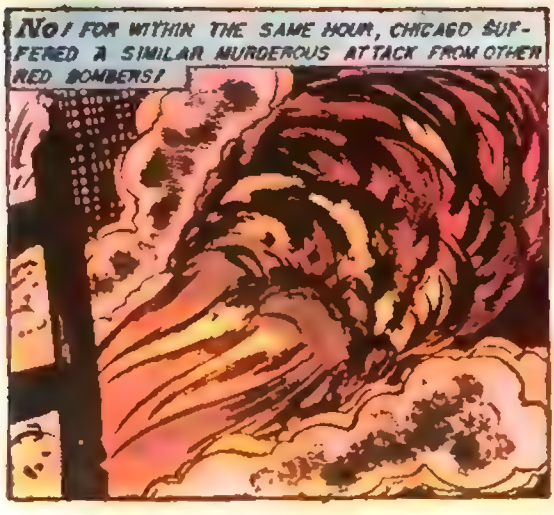
A MOMENT LATER...

YAAARRR!


A SKELETON CIVIL DEFENSE FORCE IN UPPER MANHATTAN RUSHED FROM ITS SHELTER TO LEND AID
WHAT A BLAST! IT SOUNDED LIKE A VOLCANO TORE LOOSE!
I WONDER HOW MANY BLOCKS WERE HIT? WE'RE LUCKY WE WERE SO DEEP BELOW THE SURFACE!


THEY EMERGED TO FIND DEATH WAITING AMID THE FLAMES AND LETHAL RADIATION!
(COUGH) (CHOKE) THE WHOLE CITY IS GONE! ARRRRGHH!
WE CAME UP TOO FAST! MY LUNGS THEY'RE BURNING UP! OHHH!


THIS WAS MANHATTAN FIVE MINUTES AFTER A SINGLE A-BOMB FELL. A HEAP OF TWISTED, BROKEN RUBBLE! BUT WAS THE EMPIRE CITY THE ONLY TARGET THAT "PEACEFUL" MAY MORNING?


NO! FOR WITHIN THE SAME HOUR, CHICAGO SUFFERED A SIMILAR MURDEROUS ATTACK FROM OTHER RED BOMBERS!

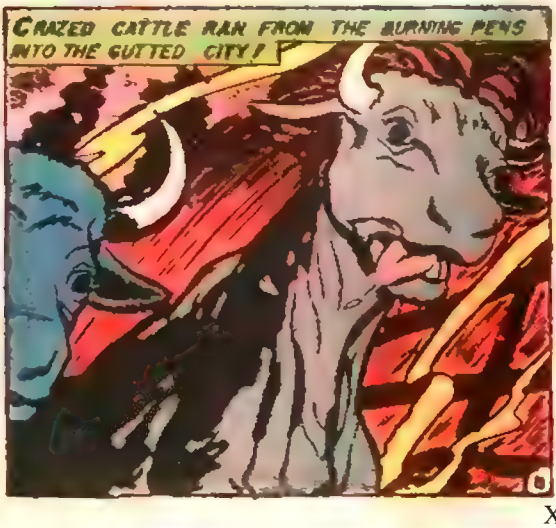
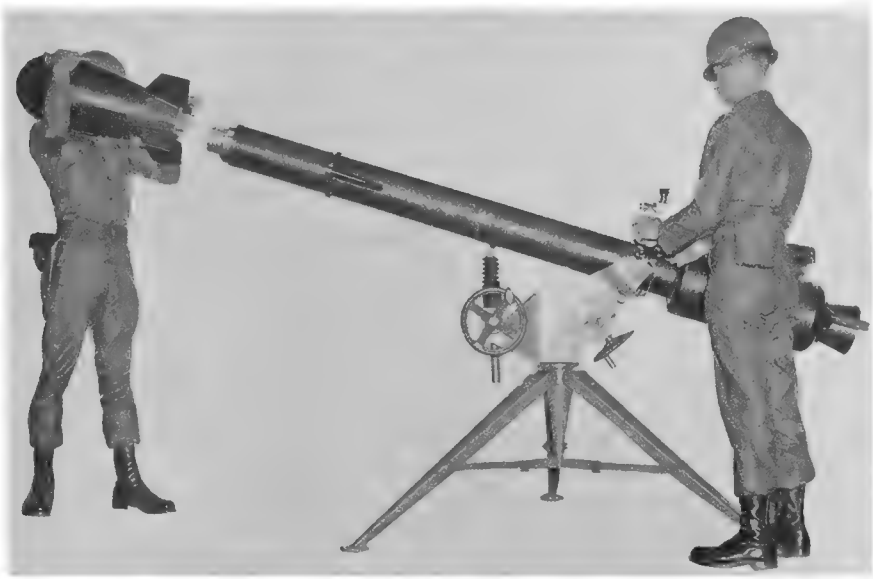

CRAZED CATTLE RAN FROM THE BURNING PENS INTO THE GUTTED CITY!

Figure 59. Light weapon on port-a-packs.

Figure 60. Equipment grounded.

XR



Mounting the Warhead

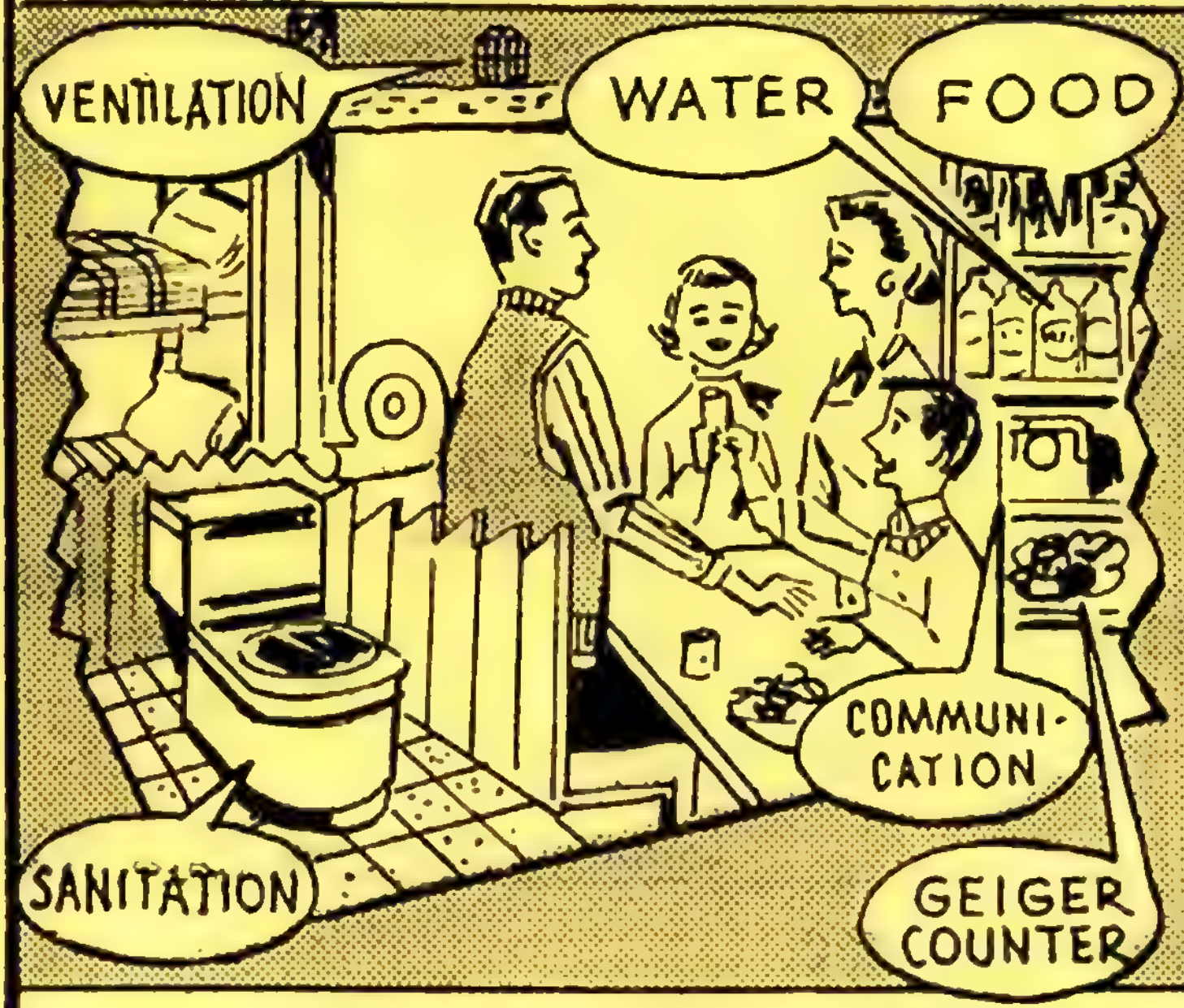
XR

R FORCE

COMMUNITY & PRIVATE

BLAST SHELTERS

1 TO 500 FAMILIES



LEE SERVICE INC.

MECHANICAL CONTRACTORS—ENGINEERS

40th & WALNUT STS. EVergreen 6-3800

XR

You Can Survive Atomic Fallout

- BLAST
- HEAT
- IMMEDIATE RADIATION
- FLYING DEBRIS
- FIRE
- FALLOUT RADIATION

45,000,000 AMERICANS—OR ONE-FOURTH OF THE POPULATION—MIGHT DIE!

IN A FAMILY FALLOUT SHELTER

97% CAN SURVIVE

In case of an atomic attack, radioactive fallout presents the greatest danger to all those outside of the immediate blast area. Now is the time to make provision for protecting your family. Civil Defense officials list as basic survival needs: a shelter from radioactive fallout, a 2-week supply of food and water, cooking and eating utensils and equipment, fuel, clothing, bedding, first aid supplies, special medicines (if needed), sanitation supplies and equipment, and a battery-powered radio.

In this 4-page folder we have selected most of the equipment you will need for an adequately equipped, well-organized shelter! Study it carefully—and place your orders now!

General Merchandise Company

MILWAUKEE 1, WISCONSIN

Buy everything you need for your fallout shelter at GMC's low discount prices! With our convenient Credit Command Plan you pay no money down, take months to pay!

JAN-9985

► **WARNING! Tune to CONELRAD 640 or 1240 kc.**

► **INFORMATION! Your contact with "the outside world"**

► **EVACUATION! Receive full instructions**

► **ALL-CLEAR SIGNAL! Lets you know when it's safe**

Pay Only **$46.50**

SPECIALLY DESIGNED RADIOS ARE YOUR LINK WITH CIVIL DEFENSE HEADQUARTERS!

Pay Only **$57.62**

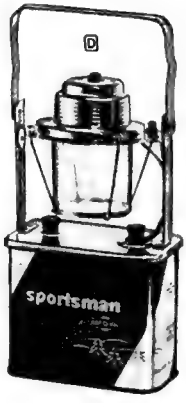
One-per-day type supply minimum requirements

FOOD SUPPLEMENT

Pay Only **$2.98**

POWER FAILURE

Two-way lantern —red flasher, white floodlight



Pay Only **$7.75**

Ⓐ PHILCO 9-TRANSISTOR PORTABLE RADIO

• Deluxe quality—high-powered performance!

Conelrad stations are clearly marked—you receive accurate information promptly from Civil Defense headquarters! Made by Philco—it's expertly engineered for full-tone reception anywhere! Extra-powerful built-in Magnecor antenna plus provision for external antenna for fallout shelter use. Large 4-in. Alnico V speaker produces distortion-free sound. Push-pull audio system. AM band 540 to 1600 kc. Precision vernier tuning. Separate tone control. Earphone jack (order earphone below). Super-powered 9-transistor chassis. Plays hundreds of hours on four "D" batteries—order below. Black morocco-grained leather case with chromed grill and dial. 10⅛ x 3⅝ x 8⅛ in. *Mfr's suggested retail $59.95*

32-1547 A—Radio. Shpg. wt. 5 lbs.....46.50
35-1254 A—Six batteries. 1 lb. *Retail $1.20*....85c
32-1323 V—Earphone. ½ lb.....2.17

Ⓑ G-E 8-TRANSISTOR PORTABLE RADIO

• Powerful full-tone reception everywhere!

Designed for use in fallout shelters—Conelrad stations are clearly marked assuring you information, instructions, news in an emergency. G-E's finest, most advanced portable features extra-large 9½-in. ferrite-rod antenna for powerful signal—has 200-ft. external antenna with lightning arrestors to assure clear reception in fallout shelters. Large 5¼-in. speaker with extra-heavy Alnico V permanent magnet for console-like tone. Continuous bass-treble control. Precision vernier slide-rule tuning, push-button light for easy station selection. AM band 540 to 1600 kc. Eight "Select-Quality" transistors, one diode. Operates up to 500 hours on six "D" batteries—order below. Ginger-colored case has chromed grill. 10⅞x4¼x 8¼ in. *Mfr's suggested retail $75.00*

32-1232 W—Radio. Shpg. wt. 11 lbs.....57.62
35-1254 A—Six batteries. Wt. 1 lb. *Retail $1.20*.85c

Ⓒ GUARDIAN ONE-PER-DAY TYPE VITAMINS

• Multiple vitamins for the whole family!

Formulated to supply minimum daily requirements of all essential vitamins plus "extras" such as Vitamin B-12 and E. Easy for children to take—about ½-average size. See [B], page 214, Catalog 621 for formula. *Compare at $6.47*

16-3550 A—Bottle of 250. Wt. 1 lb.....2.98

Save 20%—buy the Economy Pak. Contains 4 bottles (1000 tablets). *Compare at $18.95*

16-3568 A—Economy Pak. Wt. 2 lbs.....9.48

Ⓓ RAY-O-VAC EMERGENCY LANTERN

• Two-way lantern—use one way or both!

Red emergency flasher, bright white floodlight in 360° swivel mounting. Chromed-steel frame, folding handle. Battery forms base (one incl.)—order extras below. *Retail $11.95, $2.75*

35-0421 A—Lantern. Shpg. wt. 4½ lbs.....7.75
35-1940 A—Extra Battery. Wt. 3 lbs.....1.83

VIKING

A TRAINLOAD OF SOLID ACTION WITH A CARGO

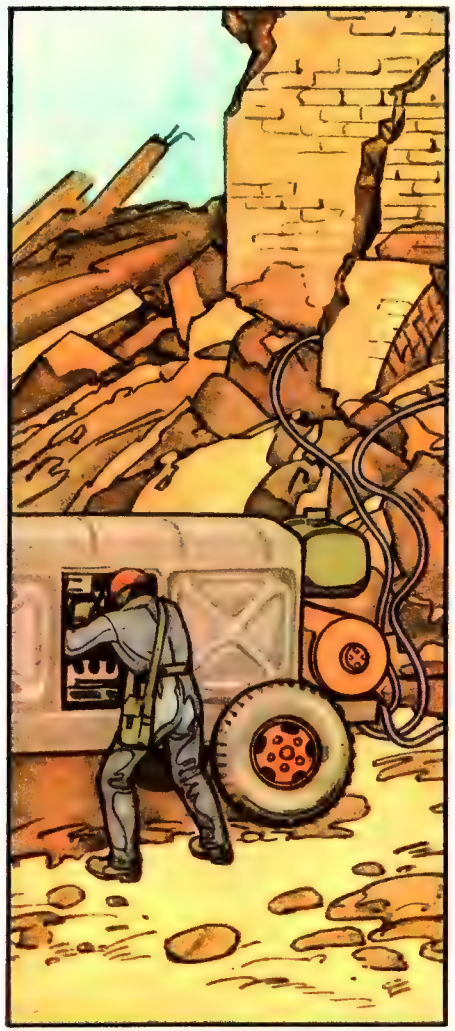
- ★ New Minuteman Missile Launching Car
- ★ New Satellite Launching Car
- ★ New Exploding Target Range Car
- ★ Magne-Traction

XR

СПАСАТЕЛЬНЫЕ И НЕОТЛОЖНЫЕ АВАРИЙНО-ВОССТАНОВИТЕЛЬНЫЕ РАБОТЫ В ОЧАГЕ ПОРАЖЕНИЯ (продолжение)

ВСКРЫТИЕ ЗАВАЛЕННЫХ ЗАЩИТНЫХ СООРУЖЕНИЙ И СПАСЕНИЕ НАХОДЯЩИХСЯ В НИХ ЛЮДЕЙ

Расчистка завала основного входа



Подача воздуха в заваленное убежище

Пробивка отверстия в перекрытии убежища

Извлечение пострадавшего из заваленного убежища

IS THIS
TOMORROW

Introduction

LIFE WILL GO ON

Millions upon millions of the world's population today are fearful of A-bomb attack. Hanging over our heads is the atomic sword of Damocles.

There are some things that we can do about this danger. That is the reason for this book. It tells the facts about the sit-

Millions upon millions of the world's population today are fearful of A-bomb attack—

XR

Russia's New 2-Jet Bomber

By Chalmers ("Slick") Goodlin
Noted Test Pilot

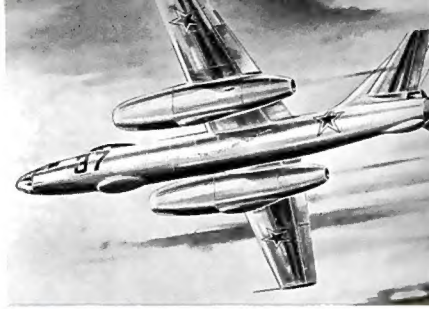
RUSSIANS in Eastern Europe are flying a fleet of brand-new, hot bombers. They were made for the express purpose of running interference for the Red infantry.

Powered by twin jet engines, the new plane is bigger, far faster and harder hitting than the propeller-driven Stormoviks with which the Red Air Force helped turn back Hitler's Panzer divisions. The Russians call it the TU-10.

Two items of the TU-10's equipment make it stand out. One is apparently the first Russian production version of a compact navigational-search radar installation.

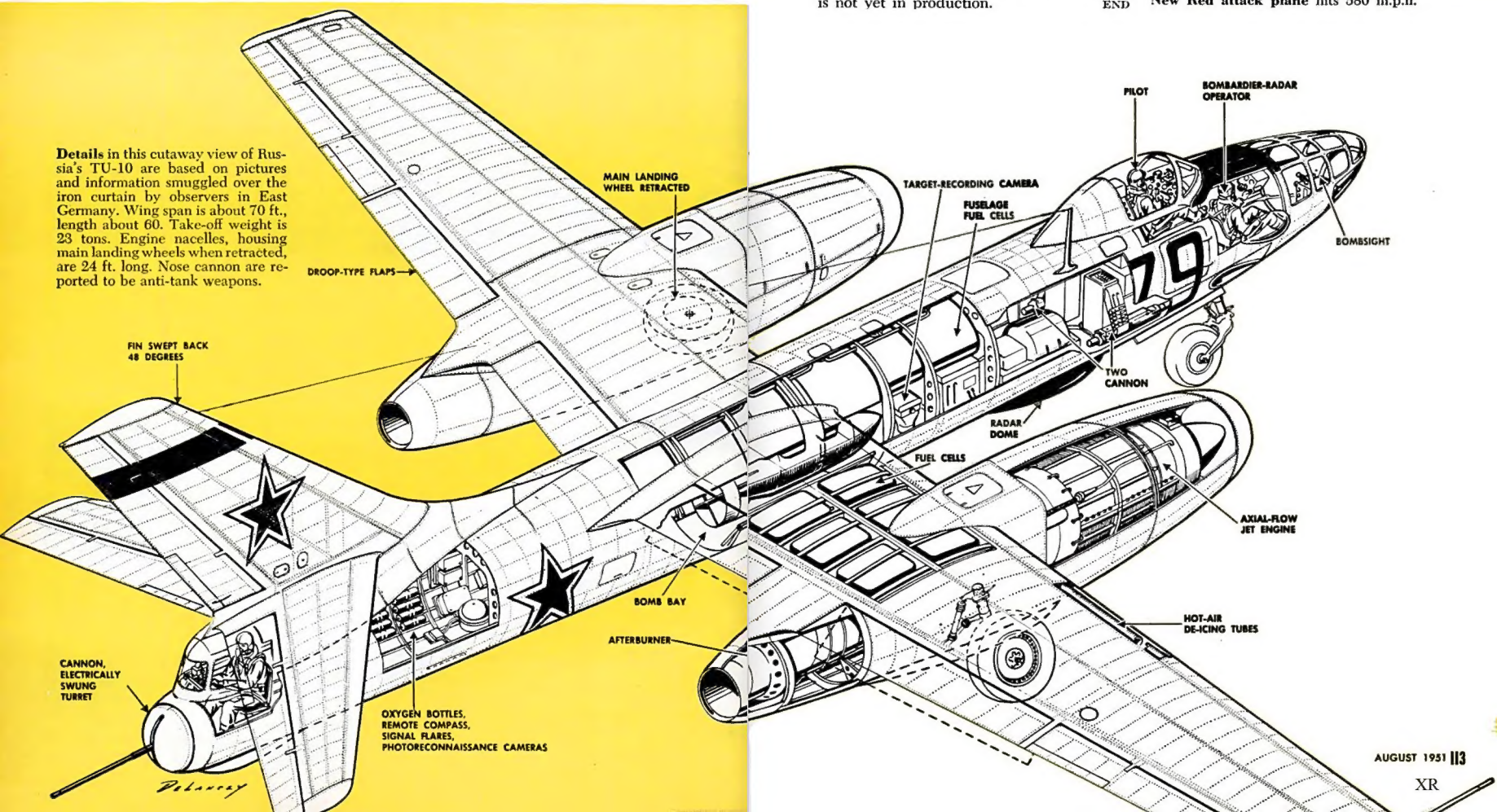
The other is a new jet engine, the M-018. It develops 7,700 pounds of thrust and has an afterburner for extra bursts of power. By way of comparison, the U. S. B-45 has jet engines of only 5,200 pounds of thrust but uses four compared with the Red Air Force bomber's two.

The TU-10 is manned by a crew of three —a pilot, a bombardier-radar operator and a crew chief who doubles as tail gunner. It compares closely in size and performance with the British-developed Canberra, which is being adopted by the U. S. Air Force but is not yet in production. END



New Red attack plane hits 580 m.p.h.

Details in this cutaway view of Russia's TU-10 are based on pictures and information smuggled over the iron curtain by observers in East Germany. Wing span is about 70 ft., length about 60. Take-off weight is 23 tons. Engine nacelles, housing main landing wheels when retracted, are 24 ft. long. Nose cannon are reported to be anti-tank weapons.



XR

Nevada Test Site History

Miss Atom Bomb

Introduction

On December 18, 1950, President Harry S. Truman authorized the establishment of a continental testing site on a 680-square mile section of the Nellis Air Force Gunnery and Bombing Range. First known as the Nevada Proving Grounds, it officially became the Nevada Test Site in 1955, opening the door to an atomic age that not only affected national security, but national culture as well.

Testing Captures America's Attention

The Ranger test series, the first at the Nevada Test Site in early 1951, was followed by the Buster-Jangle series of shots later that year. As with the Ranger series, public interest increased each time the early morning sky was lit up by the detonations. The next test series, Tumbler-Snapper, was conducted in the spring of 1952. This time the entire nation witnessed an atomic blast from the comfort of their homes as the media provided live television coverage of the event.

Linda Lawson is crowned 'Mis-Cue' by military personnel participating in Operation Cue at the Nevada Test Site.
Source: Sands Collection, UNLV Library

As Americans witnessed the first televised atomic blast, atomic fever swept the country, reflected in a variety of curious cultural phenomena. Designers of everything from clocks to lamps to corporate logos soon adopted what came to be known as "Atomic Style" into their work. It was a form of design that commonly included rays and spheres simulating the path of electrons around the nucleus of an atom. The Franciscan China Company created the wildly popular Starburst dinnerware pattern. High schools across the country named their football teams the 'Atoms.' Movies such as "*Godzilla*," and popular music all reflected this atomic fever, but perhaps none were as curious as the creation of the atomic pin-up girl.

Miss Atomic Blast

Reflecting the culture of the day while combining two of Las Vegas' biggest attractions: showgirls and atom bombs, the first known photo of an atomic pin-up girl appeared on May 9, 1952, in the Dixon, Illinois *Evening Telegraph* and the Statesville, North Carolina *Daily Record*. Depicting Miss Atomic Blast, otherwise known as Las Vegas dancer Candyce King, the caption stated "radiating loveliness instead of deadly atomic particles, Candyce King, actress appearing at Last Frontier Hotel in Las Vegas, Nevada., dazzled U.S. Marines who participated in recent atomic maneuvers at Yucca Flats. They bestowed on her the title of 'Miss Atomic Blast' finding her as awe-inspiring in another way, as was the 'Big Bang.'"

Miss A-Bomb

During the Upshot-Knothole series of tests at the Nevada Test Site in the spring of 1953, the city of North Las Vegas held its annual beauty contest. Paula Harris was selected Miss North Las Vegas of 1953. In accordance with the title, Ms. Harris rode atop the North Las Vegas Chamber of Commerce float in parade with the theme of motion picture titles. The North Las Vegas Chamber of Commerce chose "The Atomic City," a popular spy movie set in and around Los Alamos, New Mexico. The sign on the side of the float proclaimed North Las Vegas as "new & modern as the A-Bomb" and Paula was nicknamed "Miss A-Bomb."

National Nuclear Security Administration

XR

Mis-Cue

One test in the Operation Teapot series, in early 1955, was used evaluate the potential impact of a nuclear attack on civilian communities. This joint Atomic Energy Commission - Federal Civil Defense Administration program, known as Operation Cue, measured how well houses, household items, food, shelters, metal buildings, equipment, and mannequins wearing everyday clothing would survive at various distances from a nuclear blast.

After several delays due to high winds, personnel began calling the test "Operation Mis-Cue." During one such delay, Cue personnel descended on Las Vegas, where six U.S. Army personnel from Camp Desert Rock crowned Linda Lawson, a Copa Girl at the Sands Hotel, "Mis-Cue." On May 1, 1955, the Sands Hotel released a photo of Linda Lawson being crowned "to illustrate another mis-firing of the Operation Cue Bomb." Her crown was, of course, a mushroom cloud.

The detonation finally occurred on May 5, 1955.

The Last Miss Atomic Bomb

On May 24, 1957, the Las Vegas News Bureau released the last, and arguably, most famous "Miss Atomic Bomb" photo of all to coincide with Operation Plumbbob at the Nevada Test Site.

All Las Vegas Strip hotel showrooms had their own "lines" of showgirls, who performed in between the famous headliners. Donald English took the famous Miss Atomic Bomb photo of Copa showgirl Lee Merlin at the Sands Hotel. With a cotton mushroom cloud added to the front of her swim suit, the publicity photo of the last Miss Atomic Bomb has appeared and continues to appear in hundreds of publications worldwide.

The most famous atomic pin-up girl: Lee Merlin was the last Miss Atomic Bomb.
Source: Las Vegas News Bureau

The End of Atmospheric Testing

By the last atmospheric test series at the Nevada Test Site, nuclear testing was no longer the great tourist attraction that it once was. Testing had become routine and was soon to go completely underground. The general public had moved on to new and different interests such as the space race.

For more information, contact:
U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Office of Public Affairs
P.O. Box 98518
Las Vegas, NV 89193-8518
phone: 702-295-3521
fax: 702-295-0154
email: nevada@nv.doe.gov
http://www.nv.doe.gov

National Nuclear Security Administration

DOE/NV - - 1024
December 2004

XR

Nevada Test Site History

IT COULD HAPPEN ON ANY AIR FORCE BASE---A SCRAMBLE ALARM. ALL PLANES TAKE TO AIR AND AWAIT ORDERS!
LET'S GO, FELLAS!
USAF
466
Schaffenberger
2